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VACCINE THERAPY OF CHRONIC ARTHRITIS

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(Presented before the 45th annual session of the Arizona State Medical Association, April 23-25, 1936.)

We report results from an intravenous streptococcus vaccine with a soluble streptococcus antigen in chronic proliferative arthritis. A preliminary report was made October 18, 1933 in the Medical Journal and Record.

Foreign protein shock therapy, intravenous typhoid vaccine therapy and autogenous vaccines which have their places in the diverse and composite programs of treatment, have been discussed previously by one of us (B L. W.)

This paper is limited therefore to the vaccine therapy—in only one type of arthritis, chronic proliferative or atrophic arthritis. No attempt will be made to classify or relate other types to this treatment.

Literature: The opinions in this field have been summarized by Hench et al. The following authors may be roughly grouped as favoring vaccine therapy: Cecil, Nichols, Stainsby, Clawson, Wetherby, Burbank (autogenous), Anderson, Ryerson, Hoover, Crowe, Young, Thomson, Pemberton, and about 20 others including ourselves. Due to, the variations of administration of preparations, the divergence of methods in evaluating results drawing accurate conclusions from the literature is impossible. According to the authors mentioned, improvement follows the use of vaccines in certain patients.

The number of authors who wholly condemn vaccines in arthritis is surprisingly small: Minot, Ellman, Kinsella and Congdon approximately complete the list.

In 1933 and again in 1935 Miller summarized opinions of internists, bacteriologists and immunologists and concluded in part: "(1) The not infrequent, brilliant therapeutic results which seem clinically to follow vaccine administration justify the belief that vaccines do have a role in the comprehensive treatment of the arthritic patient. The specific indications for the use of vaccines, their optional dosage or method of administration, etc., are still open questions. At the moment it would appear that vaccine therapy in chronic arthritis is largely limited to the atrophic form, and has little, if any, application in the hypertrophic type. (2) The concensus of opinion inclines to the view that the mechanism whereby improvement occurs under vaccine administration is in some way related to a desensitization process rather than to the formation of specific antibodies. In harmony with such a conception, small doses of vaccine are most advocate, given preferably intravenously, and continued over a long period of time, avoiding pronounced constitutional reactions."

Selection of Patients for Vaccine Therapy: The diagnosis must be made of the kind of arthritis present. Tuberculous, luetic, gonorrheal, and other specific arthritides are ruled out. We emphasize the classical picture of gonorrheal arthritis as typical and dependable. The monarticular rapidly ankylosing major joint involvement is considered gonorrheal until proven otherwise. The multiple involvement of smaller joints resembling rheumatoid arthritis is never considered gonorrheal until proven so.

When satisfied that we are not dealing with a specific infectious arthritis, the problem is the differential diagnosis between the proliferative or atrophic type and the degenerative or hypertrophic. This differentiation is

based on general considerations such as the age of the patient, mode of onset, clinical course and apparent relation to foci of infection. Physical findings differentiating the two types are well known. Suffice it to say that warmth, redness and contractures are rare in the true unmixed hypertrophic type and are the outstanding features of the atrophic type. Elevated sedimentation time, positive streptococcus agglutinations, and (frequently) secondary anemia support the diagnosis of proliferative or atrophic, arthritis.

Rarely do clinical results from removal of foci of infection and cultures indicate that autogenous vaccines should be used. More often a long history of migratory and progressive arthritis apparently unaffected by the removal of the foci points to the allergic character of joint involvement with minute and possibly diffuse upper respiratory infection by streptococci. It is often impossible by laboratory procedures, skin tests or any clinical phenomena to prove this allergic hypothesis but if such a picture is present clinically and if the sedimentation rate is high, i. e., more than 30 mm. Westehgren in one hour and the streptococcus agglutination reactions low, i. e. 1/320 or less, then we administer vaccine. A further indication for intravenous vaccine is the prompt allergic response manifest after removal of foci. The above criteria have been found of value in a significant number of patients and are relied upon regardless of the fact that certain workers believe there is no index of the therapeutic value of vaccines.

The theory of the action of vaccines is highly speculative. It is probable that desensitization is the predominant function desired. It has been shown that skin sensitivity of rabbits to streptococci may be reversed by intravenous administration of streptococcus vaccine. In unpublished work R. A. Hicks demonstrated that in rabbits definite desensitization to streptococci is not accompained by a rise in agglutinating antibodies. By contrast, in the human subject, the administration intravenously of streptococcus vaccine elicits an antibody response in about 80 per cent of cases. Unfortunately there is no true guide to bacterial desensitization in the human subject. Skin tests, blood tests and clinical reactions may give general guidance by which to assume that desensitization is occurring, or has taken place, but we have no direct dependable test of desensitization to bacterial protein. This does not apply to desensitization to bacterial toxins. We, therefore, administer vaccines intravenously empirically for desensitizing.

Another theory of the action of vaccines is especially important. In the essential tissue changes of proliferative arthritis there are 2 definite pathological processes. The primary one is the true proliferation in the synovial membrane and in the connective tissue and endostum of the epihyseal marrow. The secondary tissue changes are periarticular fibrosis, cartilage erosion, tendon contractures, etc.; of the great list of therapeutic agents used in treating arthritis few are directed toward a reversal of the process through which the primary tissue changes begin. The hope in vaccine therapy lies in the possibility that it may so alter the host character that the basic process of arthritis may be halted. The majority of all other measures, omitting removal of foci, blood transfusions, and rest, are directed toward the relief of symptoms which arise from fibrositis.

The antigen is prepared by the biologic division of a well known **pharmaceutical house.** The principle of serial washings from massive cultures of streptococci is used to prepare the filtrate. To each c. c. is added 500,000,000 killed, non-hemolytic streptococci.

Doses of 0.2 c. c. up to a maximum of 2.0 c.c. at five day intervals is varied according to individual reactivities.

At 6 to 8 weeks intervals checks are made of sedimentation rate, serological responses and the clinical changes.

No control group is employed, but whenever possible, a preliminary period with all other therapy is contrasted with the later response under antigen treatment. To illustrate: Few patients spontaneously develop agglutinating antibodies to either non-hemolytic or greening streptococci in the absence of antigenic stimulation. Other treatment is attention to foci of infection, rest, heliotherapy, dietotherapy and physiotherapy.

Results: Since 1933, 240 patients have been treated with this vaccine. Over 2000 sedimentations and agglutinations have been studied. In the majority of instances, agglutinations, the diminution of sedimentation rate and clinical improvement occurs from the 4th to the 8th

week but may be earlier or considerably later. Eighty-five per cent of the patients showed clinical improvement which was considered marked and definite and the sedimentation rate was in accord with the improvement noted. In 5% in which no improvement took place the sedimentation rate was also parallel. In other words, the sedimentation rate definitely and precisely corresponded to clinical improvement. The remaining 10% were either not improved or the condition remained little changed. Eighty per cent of the entire group of patients treated showed an antibody response. Agglutination titres for streptococci obtained levels as high as 1/5000. The average peak of agglutination titre was consistently slightly higher for hemolytic than for greening streptococci.

In analyzing the patients who did not improve in this series 50% had agglutinating antibodies.

Full statistical data of the laboratory and other changes induced in the patients studied can not be given here.

Conclusions: Since vaccine therapy alone was not employed in this series we do not conclude that vaccine alone is responsible for the improvement obtained. Vaccine has a definite place in the treatment of arthritis patients. The mode of action of vaccines is indicated and a method of selection of patients is outlined.

DISCUSSION

C. S. KIBLER: Chronic atrophic arthritis probably should not be considered infectious until we have more convincing evidence.

The rationale of specific vaccine therapy in rheumatoid or chronic atrophic arthritis depends on the premise that it is due in some way to infection. Almost as many well persons have focal infections as those with arthritis have. However, the consistent rise in the agglutination titre to streptococci and in the sedimentation rate substantiates the theory that infectious arthritis has an infectious basis.

It is difficult to evaluate vaccine therapy without a control series of cases. Any measure which improves the general health is likely to benefit arthritis and physicians like to give their patients every possible advantage. Heliotherapy, blood transfusions, improved nutrition, blood tonics, rest, and warm dry climates are decidedly helpful and make it impossible to know exactly how much of the improvement is due to the vaccine.

Several years ago Wetherby and Closson treated a series of clinic patients solely with a streptococcus vaccine given intravenously. They reported improvement in approximately 80 per cent. A series of arthritic patients in an institution were given vaccine and a control group dextrose solution with little difference in results.

A soluble streptococcus antigen probably offers an improvement over the ordinary streptococcus vaccine. It is probable that the good results reported in this paper can be attributed largely to the streptococcus filtrate. It seems reasonable that chronic atrophic arthritis is due to a hypersensitivity to bacterial products and it is unfortunate that we have no way to prove it. Reagins are not present in the blood serum in bacterial allergy. Skin reactions also give no reliable information because streptococcus infections are frequent and are group reactions to streptococci. This theory is supported by the fact that arthritis is known to be caused by sensitization to foods.

The authors are to be congratulated for this contribution to the difficult problem of arthritis.

Dr. Donald Hill: There is conclusive evidence that infection does play a part in these cases. We have found streptococcicosis; how much it means I do not know. To evaluate controls is very difficult. We have tried many vaccines, with figures showing that the percentage of improvement of those without vaccines to be about the same as those with vaccines. One point I wish to emphasize very strongly is that not enough attention is paid to the general program. A specific cure for atrophic arthritis is not yet available. A striking advance in the therapy of the disease can occur if physicians will stop treating these patients half-heartedly with new remedies as they appear and frankly tell their patients what the problem of adequate treatment includes.

Dr. Thompson concluding. Thank you for the kind discussion on this subject. We are not yet in position to say what vaccine therapy actually accomplishes for these cases. We can not say that vaccine alone did this or that. We have a wealth of opinion but a poverty of data. By bringing the general treatment of these

cases to a higher level, we shall have a basis, for definite opinions as to the use and value of vaccine therapy. It is time for the medical profession as well as the victims of this disease to realize that there is no easy proven way.

MANAGEMENT AND SURGERY OF TRAUMATIC CATARACT

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(Read before the 45th annual session of the Arizona State Medical Association April 23-25, 1936)

This paper deals with traumatic cataracts with ruptured capsules. The other group has no penetrating injury to the lens.

A capsule wound causes lens opacity. Lens fibers, contacting the aqueous, are permeated by it and swell and cleave into layers. With an injured posterior capsule the vitreous supposedly acts the same as does the aqueous. In as much as the vitreous is retained by the hyaloid and the lens is completely surrounded by aqueous, it seems more probable that the aqueous is responsible for the clouding of the lens. Injury to the anterior capsule in young individuals is apt to produce cemplete opacification of the lens in a short time. Often the swelling is so rapid that the lens fibers project into the anterior chamber with a fur-like edge. Occasionally, this type produces an acute hypertension.

In favorable cases, the lens may disappear completely by gradual absorption so that the pupil becomes clear and black with spontaneous cure of the cataract. This is especially true in children. The posterior capsule remains and often produces a secondary cataract requiring operation. In most instances absorption comes to a stop before the entire lens is absorbed due to closure of the capsule wound. In individuals over 35, the nucleus being sclerosed, complete absorption does not occur.

There is a tendency for the posterior capsule and the hyaloid to regenerate so that wounds of these structures tend to heal rapidly. Minute openings in the anterior capsule also may seal over with little opacification. This type is seen where a small sharp foreign body enters the lens. The capsule may heal over so that only a small opacity following the path of the foreign body remains especially if from an inert substance. Small wounds behind the iris are particularly favorable as the iris becomes adherent to the wound and aids early sealing off.

A soft cataract undergoing resorption often has minute deposits, resembling the precipitates seen in chronic iridocyclitis. These, however, are essentially different, being small rounded fragments detached from the swollen lens and adherent to the posterior corneal surface.

Certain complications are frequent in traumatic cataracts.

Acute infection may follow penetrating wounds of the eye usually with panophthalmitis and loss of the eyeball.

Iritis is also common, frequently due to infection, although in instances it must be regarded as the direct result of trauma to the uveal tract. In some eyes the lens substance is apparently irritating. Such inflammation not controlled, leads to proliferation of the capsule (so-called cataracta accreta), posterior synechia and occlusion and seclusion of the pupil, with restoration of vision difficult.

Acute hypertension, due to sudden swelling of the lens and its subsequent extrusion into the anterior chamber, is another complication frequently encountered. This occurs especially in young individuals with large wounds of the capsules. I have seen this acute hypertension develop in a child of 11 years the day following an entensive injury to the capsule.

The character of the injury, the age of the patient, whether or not a foreign body is present and the amount of damage to the uveal tract, determine the prognosis.

The **prognosis** in traumatic cataract as a rule, is unfavorable if any of the above complications are present. It is good, however, in simple cases, especially in children where the lens substance may go on to absorption without surgery. In older patients, the lens does not absorb readily and comparatively small wounds may result in iridocyclitis or hypertension. A certain percentage of the cases lose vision from iridocyclitis or, even the globe from panophthalmitis. In a penetrating injury

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of the eyeball, sympathetic ophthalmia also must be kept in mind.

In the medical treatment local therapy is important. In recent cases, the conjunctival sac should be carefully cleaned and gently lavaged with a mild antiseptic such as metaphen 1-5000. Atropine keeping the pupil well dilated prevents posterior synechiae, and should be used in spite of a possible increase in tension. Hypertension can be controlled by evacuation of the lens and is preferable to occlusion of the pupil. When posterior synechiae are present in the early stages, and where atropine will not break them or dilate the pupil well, 1 per cent suprarenin bitartrate often will. After anesthetizing the conjunctival sac a drop of 1 per cent suprarenin bitartrate is instilled. Repeat in 5 minutes and again the following day if necessary. A small amount of whiskey given in advance prevents general reactions.

In patients who are sensitive to atropine, scopolamine 0.1% or even 0.2% may be employed.

Dionin 3 to 10 per cent solution, or even in the powdered form, is an effective analgesic and aids absorption. In as much as some patients are extremely sensitive to dionin, I first instil a drop of one per cent dionin to determine the degree of sensitization.

In the early stage, ice compresses control swelling but later heat is more beneficial.

A protective bandage is placed over the wounded eye; if the wound is large, bandage both eyes for a few days.

Systemic treatment is valuable in preventing complications. Because of the possibility of infection and iritis, I have been using typhoid-paratyphoid vaccine intravenously as a prophylactic measure. The usual dose is 25-50 million organisms intravenously—depending upon the age and weight of the patient. Because of disagreeable experiences following this procedure, we have recently used the method outlined by Lindner where the vaccine is given prophylactically.

On the first day, 5 million organisms are given intravenously, and 2nd day 7 million, the 3rd day 9, and the 4th day, 10 million. The shock is not nearly as great and the fever is almost as high. I am convinced that the prophylactic use of typhoid-paratyphoid vaccine has saved many eyes.

"Omnadin" (Metz) is a sterile solution of protein obtained from non-pathogenic bacteria (sarcina and B. mycoides) combined with various animal fats and lipoids from bile. Action also is to increase the non-specific immunity of the body. It is given intravenously—the average dose for adults being 2 c.c. This can be given daily with no anaphylactic or accumulative effect, and no risk of overdosage. It is not attended with the disagreeable general reaction of typhoid vaccine and therefore may be used in ambulatory patients. It is not a substitute for typhoid vaccine but is an aid to or substitute for typhoid when contra-indicated.

With iridocyclitis salycilates are valuable and can be given in daily dosage of a grain per pound body weight. If a reaction developes, discontinue them for a few days.

The surgical treatment of traumatic cataracts must be varied according to the indications and is used in conjunction with medical treatment. During the inflammatory stage, acute hypertension is the indication for surgical interference. Without lens substance in the anterior chamber, paracentesis frequently suffices. This should be done with a Graefe knife; if not effective, extraction may be necessary.

In glaucoma with lens substance in the anterior chamber extraction is indicated. In individuals under 35 linear extraction is the operation of choice. Over 35, because of sclerosis of the lens, the usual cataract operation should be performed. Under retrobulbar anesthesia the operations are without pain. Extractions in acute hypertension have few postoperative complications and usually do well. This is borne out recently in dinitrophenol cataracts with acute hypertension.

Where lens opacities or remnants interfere with vision surgery is indicated after the acute traumatic symptoms have subsided. The protective vision obtained and the elimination of the blind side are of sufficient benefit to the patient to warrant surgery. If the inflammation has been severe, especially in cases of membranous secondary cataract with occlusion of the pupil, surgery should wait 1 to 2 years.

The disadvantages of discission are well known. Linear extraction, as usually done, has certain disadvantages such as prolapse, incarceration, and injury of the iris. If an

iridectomy is done the eye is disfigured. Several years ago Otto Barkan again called to our attention a method that eliminates most of these disadvantages.

Shortly before starting the operation 0.1 to 0.2 c.c. of adrenalin 1/1000 is injected subconjunctivally above and as near the limbus as possible. A marked dilation of this area of the pupil results except occasionally.

Incision, made with a keratome, is corneal and about 2 mm. from the limbus and almost parallel to the corneal plane. This produces a valve-like opening which is promptly sealed as soon as aqueous reforms. The greater the intraocular pressure the more firmly is the posterior lip of the incision pressed against the anterior. As the incision is in front of the dilated iris and the wound closes quickly there is no tendency to develop iris complications.

Through this incision capsule forceps are introduced and a large piece of anterior capsule removed. Should there be lens substance in the anterior chamber but a small opening in the capsule it may be advisable to enlarge this.

Depress the scleral edge of the corneal incision slightly with a spoon and the soft mass will slide through the gaping wound. Gently stroke the cataract from below upwards with another spoon against the cornea and the remainder of the lens substance will be removed. Lavage the anterior chamber with half normal saline at body temperature to wash out small particles not removable by the spoon. It is important to make certain that the lips of the wound are clean before closing.

Traumatic cataracts in individuals over 35-40 are best removed in the usual manner. The technique used in the division of ophthalmology of the University of California Medical School seems to give us the greatest possible security.

Two important factors, probably the 2 greatest steps forward in recent years which determine the success or failure of the operation, are adequate anesthesia of the globe and satisfactory akinesis. The anesthesia is obtained by instillation of cocaine in the conjunctival sac, accompained by retrobulbar injection of 2 c.c. of 4% novacain to each c.c. of which has been added 1 drop of adrenalin (1:1000).

With a 4 cm. platinum-iridum needle puncture the skin at the lower temporal border of the orbit. The needle is pushed along the floor of the orbit, for almost its entire length, bringing its point nasally behind the eye in the region of the ciliary ganglion. The plunger is gently withdrawn to be sure a vessel has not been entered. Inject the novocain slowly. In 4 to 8 minutes complete anesthesia of the entire globe results. A hypotony further guards against vitreous loss. For akinesis 2 per cent novocain with adrenalin is used in the usual manner.

My associate, Dr. Horner, developed a method of controlling the lids by sutures. The lid edges are injected with 2% novocain. White silk sutures are introduced through the upper lid margin in 3 places. The suture ends clamped with a hemostat are easily controlled by the assistant producing a "tenting" of the lid. A single suture adequately controls the lower lid. This method avoids a possible hurried removal of a speculum and the lids can be closed or opened by the assistant or surgeon. The danger of pressing the lid hooks against the globe is eliminated. Patients may close their eyes for a few minutes after the incision or after the iridectomy.

The superior rectus suture useful in certain cases is placed before the incision. It is easily removed afterward.

The conjunctival flap method is always used. The conjunctival suture is placed immediately after the incision and a wide loop left well out of the way. This suture can be used to lift the corneal flap to facilitate iridectomy or iridotomy and the introduction of the capsule forceps, and is dropped back in place after the instrument is in the anterior chamber.

The method of extraction may be either the extra- or intra-capsular depending upon the operator and the case.

With small healed capsular wounds, and no absorption, the intracapsular operation is preferable, especially if complicated by post synechiae. In these the zonula is weak and, after post synechiae have been separated by a thin spatula, little difficulty is encountered in removing the lens by the intracapsular method. Membranous or shrunken traumatic cataracts can often be extracted successfully by this method.

Secondary cataract is a frequent complica-

tion of traumatic cataract. The simple type can be taken care of by discission in the usual manner.

With dense membranous secondary cataracts, particularly with occluded pupils, simple discission will not suffice. The following procedure is efficacious in most instances.

A corneal incision is made with a keratome near the limbus. The keratome is directed backwards so that a horizontal incision is made above the pupillary area through the iris and the lens capsule. A small pair of closed de Wecker scissors are introduced. At the transverse iris cut, one blade is placed through the wound beneath iris and capsule and at right angles to the first iris incision. The other blade is in the anterior chamber. The scissors are closed, and cuts vertically at right angles to the iris incision leave a clear pupillary area. Slight vitreous loss is not serious. Convalescence is usually uneventful. There is little tug on the ciliary body and, consequently only slight reaction.

Occasionally patients with traumatic cataracts have large corneal wounds. These were formerly cared for by conjunctival flaps placed over the wounds. During the last 2 years I have sutured the corneal and scleral wounds using Kalt's corneal needles and corneal silk suture. The sutures are placed through the outer half or two-thirds of the cornea or sclera. It is essential that the lips of the wound be clean and exactly approximated. Any prolapsed iris must be replaced or excised. In young individuals particularly there is the possibility of hypertension from the rapid swelling of the lens with its subsequent interference with healing. It is often possible in these cases to remove most of the soft cataract with spoons before placing the corneal sutures. Following the spooning the anterior chamber should be lavaged. Particular care should be exercised to see that no lens particles remain in the wound. Thus it is possible to save an otherwise lost eye.

It is evident that in the management and surgery of traumatic cataract one must be guided by the indications in each individual case.

ACNE VULGARIS

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(Presented to the El Paso County Medical Society May 25, 1936.)

I discuss acne vulgaris, and not acne rosacea or the papular eruptions of acneform distribution caused by iodides, bromides, digestive disturbances, food sensitizations, tar, oils, etc.

The **history** of the average untreated case of acne vulgaris is about as follows: The eruption begins about puberty or during early adolescence; the first evidence is the comedo, or blackhead, which is a hyperplasia of the epidermis of the pilosebaceous orifice with consequent retention of sebaceous material within the duct and gland; there is usually an accompanying seborrhea; some of these lesions remain simple comedones, others develop peri-follicular inflammation varying from a small papule to the large suppurating and cystic lesions of acne indurata; with healing there is usually scarring, varying with the grade of inflammation and the scarring tendency of the individual; this process, involving the face, chest or back, usually subsides at about 19 to 21 years of age. Some cases last longer and some are of shorter duration.

The **etiology** of acne vulgaris is not fully understood. There seems ample evidence that disturbance of the hormone balance associated with puberty forms the base on which the disease develops.

B. acne has been thought to play a part with staphylococci responsible for the pyogenic element. The role of each of these organisms is open to question.

Certain cases are aggravated by anemia, digestive disturbances, constipation, and the ingestion of iodides or bromides. Iodine is in certain foods and in iodized salt, and bromide is a constituent of certain compounds used in the baking of bread.

Altho cases have been reported by Cleveland White[1] of a papular eruption of acneform distribution which were apparently associated with specific food sensitization, these were not cases of true acne vulgaris. It is possible that an occasional case of acne vulgaris is influenced by specific foods, but this is unimportant in the average case.

The x-ray is the most dependable **treatment.** The optimism formerly held has given way to a more guarded prognosis. It is not the method of choice in every case. Michael[2] in an excellent review and evaluation of treatment stated that the cures with x-ray approximate 80%. Selection of cases will, I believe, raise this figure. Adolescents do not as a rule respond to x-ray as well as do older cases, and should receive other treatment first. X-ray must be given expertly and cautiously, erythema carefully avoided, and the total quantity of radiation kept within the limits of safety.

It would be well here to mention the scarring which occurs following the healing of deep acne lesions. There is a belief prevalent among the laity, and unfortunately among many physicians, that the pits are caused by x-ray treatment. There is no foundation for this belief. The scarring is a result of the destructive inflammation, and occurs with or without x-ray treatment.

Ultraviolet radiation, whether from the sun or from quartz lamps, is likely to be of benefit if given in large doses, tho the results are often only temporary. I have repeatedly seen cases of acne vulgaris improve during a stay at the beach, to recur again when the patient returned to school or other indoor occupation.

Proper local applications will accomplish a great deal in most cases, and will cure some. Such treatment is especially applicable to cases from 12 to 15 years of age.

Attention to digestive disorders and constipation is always indicated, but in many cases where benefit might be expected, none is observed. Elimination diets should be tried in the cases which do not respond, but as a rule they accomplish nothing. Restriction of carbohydrates is customary, and occasionally beneficial, although there is no evidence of faulty carbohydrate metabolism.

It is always well to restrict the use of iodized salt, and in cases where the patient has been using iodine or bromine in any form large doses of pure sodium chloride should be given daily, for it is known that chlorine tends to replace iodine and bromine in the tissues.

Anemia should be corrected. Iron, cod liver oil or viosterol, and brewer's yeast are indicated for patients who are under par. Staphylococcus bacteriophage and vaccines appear to be of benefit in cases where there is a severe pyogenic element. Otherwise they are practically useless.

In the last few years various endocrine substances have been employed. This seems a step in the right direction, but the results have been disappointing although an occasional case is much benefited. In the present state of our knowledge it must not replace other treatment. In my own experience the cases which have been most benefited by hormone therapy have been women well past 20 years of age. In one case, in which the anterior pituitary-like sex hormone was being given with definite benefit, the treatment had to be discontinued on account of loss of weight and nervousness. I have seen no other untoward results.

SUMMARY

Acne vulgaris is a syndrome, the basis of which is probably some as yet poorly understood imbalance of the sex hormones.

Other factors, local and general, influence the disease. Each case therefore must be studied individually, and treated accordingly.

The large majority can be permanently cured by intelligent treatment. A few will resist all treatment.

Scarring is a result of the pathologic process, and not of treatment.

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INTRADERMAL USE OF ALUM PRECIPITATED TOXOID

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The necessity of reducing the handicaps in mass immunization against diphtheria with the usually recommended dosage and method of administering alum precipitated toxoid, led me to adopt a method hinted at in the literature as probably effective, but not recommended. My experience with the intradermal reduced dose in antityphoid immunization, carefully checked by laboratory procedure, removed all hesitancy to adopt the same idea for immunization

againt diphtheria. Alum precipitated toxoid was administered intradermally in a single dose of 0.1 ml.

Two groups of children totaling 148, ranging in ages from 8 months to 15 years, and located in widely separated areas were selected for observation. These were carried through two readings of the Schick test—60 hours and 130 hours after administration. The test was used exactly 6 weeks after administration of toxoid. The children were not "schicked" before being "toxoided", and were representative of the "mill-run" of preschool and school children encountered in a general campaign of diphtheria immunization. The use of the Schick test before administration of the toxoid was purposely eliminated as being expensive in time, material and labor and, therefore, impractical in extensive immunization work.

Of the 148 children, 95.95% were Schick-negative and 4.05% Schick-positive. In the latter the second readings always were decidedly more positive than the first. Of the 148, 8.10% showed a proteid reaction which had either disappeared or was decidedly more faint at the second reading. In one child a superficial abscess following the toxoid dose, was reported, and this child gave a negative Schick test, and did not react to proteid.

The objections to the subcutaneous method and dosage: The cost to health departments of the subcutaneous method and dosage, considering waste in handling, is about 15 cents per 1 ml. dose. The retail price is about 40% more. It is time consuming. There is waste of material, since a great deal of it is rapidly eliminated without having opportunity to excite formation of antibodies. The local reaction is decided and uncomfortable in a large percentage, and the formation of deep abscesses, painful and of long standing, is prone to occur. If there exists proteid sensitiveness in the individual, constitutional symptoms are likely to be marked. Because of the inevitable occurrence of constitutional symptoms from either proteid sensitiveness or the toxoid proper in adults, one hesitates to use it in persons shown to be Schick-positive, and need and ask for protection. The injections are painful and in children of impressionable age engender fear for future contacts. To the average private patient—family with three or four children, the cost of material plus the fee for administration is almost prohibitive; therefore health departments are importuned to serve persons outside of their obligations to the indigent class.

Advantages of the Intradermal Method and Dosage: The cost for material is one-tenth that of the subcutaneous method—about 1.5 cents for the 1 ml. dose: the retail price is 40% more. The method is quick. There is no wasted material since it is absorbed slowly and every bit of it used to excite the formation of antibodies, and the amount injected seems sufficient to produce a negative Schick reaction in a comparatively short time. There is very little local and no constitutional reaction. If an abscess occurs, it is superficial, not particularly painful, and if evacuated, heals quickly and without disfiguring scar. If proteid sensitiveness exists it is manifested locally, and not constitutionally. Fear is not engendered in the young child, because the injection is not particularly painful when carefully done. It can be administered to those of late adolescence and to adults without constitutional or marked local reaction. We have demonstrated this, and do not hesitate to use it whenever necessary. The method should appeal to the general practitioner whose clientele deplores the high cost of immunizing material. A method of extending this service more generally probably will suggest itself to him.

COMMENT

How long the immunity will be maintained by the use of this method should be determined. This is almost impossible, since the opportunity and advent of acquired immunity occurring most any time is ever present, and will color the results beyond recognition and value.

HOW CAN WE REDUCE THE DEATH RATE FROM CANCER?

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(Prepared for the 56th annual meeting of the New Mexico Medical Society May 8-11, 1936.)

The 2% annual increase in cancer deaths in the United States is a challenge to the medical profession and to the public health departments

which cannot be ignored. The opinion prevails in certain minds that this increase is due entirely to improved facilities for diagnosis available today; this is questionable. If instead of actual death rate as a guide, we use the incidence we might well claim that this increase is due to better diagnostic facilities; but it is hard to see that each year there has been an increase of just 2% in ability to diagnose this disease. The ways by which this death rate can be lowered deserve consideration and I present it for your thought under two headings: Research and education.

Research has two separate divisions: First is the investigation of the nature of the disease from the laboratory and experimental side. This is a most fascinating approach to the cancer question and offers immeasurable opportunities for speculation. In the U. S. several laboratories have devoted their entire attention to this question. In the Rockefeller Institute in New York, under the direction of Dr. James Murphy, the work has been confined largely to experiments with the Rous chicken sarcoma and with other tumors occurring in fowls, and has given many interesting and important results. Under the direction of Dr. Stanley Reiman, at the Lankenau Hospital in Philadelphia it was discovered that certain chemicals containing sulphur and hydrogen have the definite effect of stimulating cellular growth. They saw an important clinical application of this discovery to the healing of chronic, indolent ulcers, etc., and lost no time in placing this on the market, with the result that the sale of this compound has provided funds with which to continue their research.

Laboratory research also approaches the subject from the biological side. Maude Slye, C. C. Little and many others have used the spontaneous tumors in animals such as rats and mice in their experimental work. In studying problems of heredity mice offer the opportunity of observing many generations in the life-time of one observer, since mice of 1, 2 and 3 years of age correspond to men of 40, 70 and 100 years. Mice have men's kinds of tumors, breed early and have comparatively large litters, are inexpensive to keep and have other advantages for cancer study. Maude Slye's painstaking observations of many generations of mice deserve much commendation, even if her conclusions have been doubted. The work of Dr. Little in Bar Harbor, carried on for over 25 years, instead of using the observation system, started with the premise that if through inbreeding most of the variables could be eliminated, one could form more accurate conclusions regarding the heredity of cancer. This research indicates at present that cancer of the breast is transmitted, not through the chromosomes as had been previously thought, but through the cytoplasm of the female egg cell. This discovery came through crossing a female in which the spontaneous incidence of cancer was observed to be approximately 50% with a male, whose cancer incidence was 0.1% The resulting generation developed cancer of the breast in about 39%. With crossing a female from a low cancer of the breast incidence, with a male from a high breast cancer incidence, the resulting generation developed breast cancer in only about 6%. This investigation is still being pursued.

Lacassagne painted theelin, chemically related to the dibenzanthracene compounds, on the skin of male mice who never develop breast cancer spontaneously; local irritation and hyperplasia with cancer of the breasts resulted. The cause was through systemic development and not through local influence since it was not painted on breast tissue. This may be an important observation in the clinical use of theelin, and while no one has yet announced that it is dangerous it certainly should be used with caution. Another observer has recently announced that, in a strain of mice with a high incidence of spontaneous cancer of the lung, painting the skin with theelin increased the incidence of lung cancer.

Clinical research certainly cannot be considered less important than laboratory research. For many years observers have treated cancer cases, studied sections of tissue, and signed death certificates without keeping accurate records or materially adding to the knowledge of the disease. Now the picture has changed. Over 250 fully approved cancer clinics exist in the U. S. today; groups of interested physicians are daily treating cases and carefully observing and recording the facts. In a few more years we shall have a mass of valuable clinical data. Many more such study groups should be formed.

The second method by which we may hope to lower the death rate from cancer, consists

in education, both of ourselves as physicians and of the general public. Many physicians graduated before the development of modern methods of treatment. When I graduated the treatment of cancer in any location was almost entirely surgical. Many of us have had little or no opportunity or demand to increase our knowledge of the treatment of cancer, since average practicing physicians have the opportunity of treating only 2 or 3 cases per year. If each physician in the U. S. knew only half the amount concerning the treatment of cancer that he knows about the treatment of other diseases, the death rate from cancer would be definitely lowered. In many of our large hospitals where ultra modern methods of treatment of other diseases are in constant use, we see physicians doing radical surgical operations to cure late carcinoma of the cervix; we see partial and incomplete operations for the removal of cancerous breasts; many things are being done which should not be—in the light of modern knowledge. Great pessimism exists in the minds of many concerning the possibility of trying to change the level of medical knowledge possessed by physicians; but I am not of this opinion. I believe that if a method could be found by which physicians could be instructed in modern methods and facilities for modern treatment provided, we would get hearty cooperation from the vast majority of the doctors.

The American Society for Control of Cancer is helping in this endeavor through the use of flims and projectors supplied free of cost to groups of physicians requesting them. We shall eventually have a complete library of films on all phases of the treatment of cancer; the film on cancer of the breast is the only one now ready.

Lastly we must consider education of the public that they may learn the early warnings of cancer and consult their physicians early. Various methods of doing this have been tried; that we have met with a measure of success is evident from the number of early cases coming for treatment. That more early cases have not come is often from lack of cooperaiton of physicians. Certainly no one can deny that the effort is worthy; merely because we seem to be confronted with an insurmountable wall of difficulties is no reason for not making the effort. Various objections such as "creating cancer-phobia;" will do no good if radium and x-ray are not more readily available, and many others have been raised, mainly by physicians. To the latter, we agree in part, but if a start is not made we shall never make headway in this great battle.

The president of the New Mexico Medical Society has appointed a cancer committee to do what it can in this state to lower cancer death rate. If each physician practicing in this state would personally contact a member of this committee and offer to do his part in his own community, as directed by this committee, it would not be long before we would have better facilities for diagnosing and treating cancer, and soon we may point with pride at a death rate going down instead of up.

The public health department can distribute literature, give public health talks, collect statistics, educate public health nurses regarding early symptoms and get patients to physicians in time; all can be done without creating additional departments or adding much work to any individual.

TREATMENT OF POLLEN AND OTHER INHALANT ALLERGY

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Inhalant allergy may arise from pollens, animal emanations, miscellaneous substances such as cottonseed, kapok, flaxseed, cottonseed, pyrethrum, orris root, house, feed, grain, and other occupational or environmental dusts, and spores of a multitude of fungi. They may be air borne and produce allergy, especially after repeated inhalation of excessive amounts.

The treatment of inhalant allergy is of great importance because of its many manifestations. It is often associated with food and less frequently with drug and bacterial allergies. Hay fever, bronchitis, asthma, chronic or recurrent nasal colds or congestion, recurrent or chronic sinus congestion leading to sinusitis or polyposis may arise. Much chronic conjunctival congestion and vernal catarrh arise from animal emanations, house or ocupational dusts and other miscellaneous allergens complicating pol-

linosis. Inhalant allergy moreover is responsible for much eczema. It plays an increasingly important role as compared with food allergy as age increases. The inhalants are absorbed through the naso-bronchial membranes and carried to the sensitized cells of the cutis by the blood. Allergic toxemia may result from inhalants, especially pollens—originally reported by Kahn in children and emphasized by my work in adults. Weakness, fatigue, and depression may be the chief result. Occasionally gastrointestinal symptoms, recurrent or chronic headache, and rare cases of epilepsy result from inhalants; cardiovascular disturbances including hypertension and anginal attacks may be primary or secondary results.

Successful treatment depends necessarily on accurate diagnosis. This demands a carefully taken history and the use of various tests. All information indicative of manifestations of allergy in the family or personal history should be included. A detailed study of the presenting symptoms should be recorded and an analysis of the diet and environment from the allergic viewpoint must be made. The patient should be tested first with the scratch method with all food and inhalant allergens which are ingested or in the environmental air. Thereafter intradermal testing should be done with 1-200 dilutions of glucose, saline, or glycerine extracts of all important inhalant allergens which have not reacted by the scratch method. In the absence of reactions, 1-50 dilutions of glucose or saline extracts may then be used.

That approximately 10 to 20% of patients who fail to react to skin tests have inhalant allergy stresses the value of a well taken history and has encouraged the introduction of the conjunctival, nasal, and intrabronchial tests to determine mucous membrane sensitivity. With such tests, moreover, the clinical evaluation of slight or indefinite skin tests is possible. The final determination of the activity of the allergens in the etiology of the symptoms usually depends on the results of prolonged treatment. When history indicates probable causes, the choice of inhalant allergens for desensitization or avoidance must be based on previous experience. The successful control of any allergy requires recognition of all existing sensitizations—inhalant, ingestant, contactant, and bacterial. Poor results too often are due to failure to recognize associated allergies and to appreciate that treatment cannot be determined solely by skin reactions.

Environmental control: Immediate results to a large extent depend on environmental control and on air free from pollen and dust. Air filters may be necessary. Patients may need to sleep in rooms with hard wood or painted floors, on which are washable rugs. Linoleum may be used but those with extreme sensitization to flaxseed may be disturbed by it. In the absence of cotton or kapok sensitizations, and with sensitization to feathers or animal hair, floss or cotton mattresses and pillows may be used. Sensitization to cotton often is associated with kapok allergy which, however, may exist alone—even in the absence of skin reactions. In such cases, the mattress and pillows are best covered with loose slips of a thin rubberized sheeting. Several sheets or pads should separate the body from rubberized covers because of their tendency to cause perspiration. Some persons are even affected by the lint from the finest cotton thread and fabrics; in such cases linen in the absence of flaxseed allergy may be advisable. An open spring mattress, wooden or metal furniture and clean cotton curtains should be used. Thereafter the floors, walls, ceilings, fixtures, window shades, furniture should be wiped down thoroughly on all sides with damp cloths. This is important even in pollen allergy, since pollens deposited in the house during the pollen season are in house dust. Bedding should be well-washed cotton blankets unless marked allergy to cotton exists. During cold weather old well-washed woolen blankets devoid of fuzz are advisable. With wool allergy desensitization may be beneficial. The patient's room, of course, may be heated to allow the use of cotton bedding.

For individuals markedly sensitive to inhalants, a sitting room and working environment prepared in similar manner as the bed room may be advisable until desensitization is established. Attention must be paid to air borne inhalants from nearby yards and houses. Pollens from adjoining flower gardens, trees and shrubs must be suspected. Emanations from dogs, cats, chickens, or other animals nearby may cause difficulty. The effect of sitting in

theaters, public rooms or automobiles, in which dust control is not adequate must be kept in mind. Emanations from the clothing of friends or relatives, especially when made of wool or silk and from cosmetics may produce symptoms. Certain children and adults are so sensitive to inhalant allergens that attendance at school or mingling with people is impossible until desensitization has been established. Commercial or home made mechanisms which force air through adequate filters remove practically all pollens and dust from the air and afford patients much relief. All who enter the patient's room should wear clothing to which no definite allergy exists in the patient. The precautions and control of inhalant allergens may be modified according to the degree and type of allergy in the patient, especially as desensitization is achieved.

Desensitization: Tolerance to inhalants occasionally establishes itself naturally as is the case with food allergy in a few individuals. Usually inhalant allergy tends to become more severe with sensitizations to increasing numbers of pollens, aimal emanations and dusts. This emphasizes the importance of continued and persisting efforts toward desensitization or hyposensitization so that such allergic propensities are supressed below the level of reactivity. At present such desensitization is generally accomplished by hypodermic administration of antigens composed of extracts of various allergens to which the patient is sensitized. Black and recently Gatterdam have reported favorable results with ingestion of pollen extracts and Urbach is attempting desensitization with the inhalation of solutions of increasing strengths of the causative allergens.

In our work 2% extracts of dry pollens, animal emanations, fungi and other miscellaneous allergens are made with Unger s 5% glucose solution containing .5% phenol. Dusts, hair, feathers, feeds, and other similar substances from the patient's environment may be extracted with the same solution. After filtering through a Buchner apparatus, sterilization is effected with a Berkfeld or Seitz filter. Glucose extracts are as stable as those containing glycerine; they are easier to draw through fine needles, are not productive of pain or necroses. croses.

The allergens included in the therapeutic antigens depends on the following criteria: Allergens which are actually inhaled in various environments by the patient should be selected; with negative reactions this information may offer the sole basis for selection of antigens; those which give skin reactions must be given special consideration; and those to which mucous membrane, and not skin sensitization exists as determined by history, or conjunctival and naso-bronchial tests may be included.

For the preparation of pollen antigens, the physician must have accurate botanical surveys of the patient's district. A recent summary of the Southwest was published by Sellers, and previous surveys of separate districts in this area have been prepared by Watson and Kibler, Phillips, Lamson and Watry, Balyeat, French, Key, Hubrey, and Black. Since pollens blow hundreds of miles, the flora of distant areas from which prevailing winds come is important since the pollens from such regions may be in sufficient concentration to produce symptoms. Pollens of unusual types when near patients' homes and from cultivated flowers in the house or nearby gardens may be important. This makes a study of the patient's neighborhood by the physician of definite importance. Pollinosis may continue throughout the year because of pollens in the dust of homes, automobiles, vehicles, and public buildings.

When reactions to several or many pollens of the same botanical family occur, desensitization may often be obtained by treatment with the most important pollen of such family. Thus one grass pollen, one artemesia, amaranth or franseria pollen may protect against those of closely related species. Satisfactory relief, however, frequently depends on treatment with pollens of all important species to which sensitization exists and which are inhaled. Desensitization to tree pollens necessitates inclusion of practically all which are inhaled even in moderate amounts, and to which allergy exists. The same is true of the pollens of cultivated flowers when symptoms arise therefrom. Pollinosis, I repeat, may occur without scratch or intradermal skin reactions. This places a premium on mucous membrane tests and history.

Desensitization to animal emanations, orris root, cottonseed, kapok, pyrethrum, and other miscellaneous allergens again necessitates specific therapy. Thus if a patient is sensitive to

horse, cattle, cat, and dog hair, wool, chicken, and duck feathers, it becomes necessary to make an antigen containing all such allergens. The more allergens included in the antigen, the larger the final dose of the strongest concentration should be. When special extracts of dusts, feathers, hairs, fabrics, or other substances are prepared, several of the reacting ones can be included in the antigen to be administered. When allergy to fungi is demonstrated by history and by inhalant or skin testing, extracts of those causing symptoms can be combined in an antigen with other inhalant allergens for therapy. Such fungi may be stock dry allergens or the ground dry pelts from growths on Sabouraud's plates exposed in the patient's environment. The question always arises about the number of separate inhalant allergens which can be included in an antigen. This may vary from 1 to 12 or even more. A pollen antigen for instance, may contain 2 parts of bermuda, 1 of franseria acanthicarpa, 1 Russian thistle, 2 mountain sage and 0.5 atriplex hastato, the choice depending on the degree of clinical sensitivity in the patient and the relative amounts of the pollens in the air of the patient's environment.

ADMINISTRATION OF ANTIGENS: The initial dose of an antigen varies according to the sensitivity of the patient to the included allergens. Usually patients giving large scratch reactions are more sensitive than those giving only intradermal or mucous membrane reactions. Again a larger initial dose of an antigen containing several pollens ordinarily may be given than of one containing only 1 or 2 pollens. In general an initial dose of .025 or .05 c.c. of dilutions which just failed to react by the scratch method of testing can be administered. The injections must be given just under the skin in the leg or arm where large veins are not present. The outer and upper side of the arm, posterior to the mid line is a favorable area. Intravenous injections are dangerous. Therefore after the insertion of the needle, the plunger should be gently drawn back and if blood enters a new injection must be made before administering the antigen.

Our strongest solution is a 1-50 extract of the allergens; 1-500 and 1-5000, and if necessary 1-50,000 dilutions are prepared therefrom. When marked scratch reactions are obtained, treatment out of season is usually begun with a 1-5000 and at times with a 1-50,000 dilution. Coseasonal therapy necessitates smaller doses and great care with increases. Treatment is usually increased by .025 to .1 cc. If local reactions are larger than three to four inches in diameter or if exaggeration of symptoms occurs, slow progress is necessary. The treatments may be given every 1 to 7 days according to the tolerance of the patient. If marked local reactions occur, subsequent treatments must be delayed until subsidence of reactions. The maximum dose depends on the amount necessary to desensitize the patient. Some obtain relief with doses of a 1-5000 or even a 1-50,000 dilution. Usually, however, from .1 to .5 c.c. of a 1-50 dilution, or from 2000 to 10,000 Noon units of each important pollen is necessary for protection, the size of the dose varying with the actual amount of the specific pollens in the air. The determination of adequate doses therefore, can be gauged somewhat by atmospheric pollen counts. If 5 to 8 pollens are included in the antigen, a final dose of 1 c.c. or even or more of the 1-50 dilution may be required; if 1 or 2 pollens are in the antigen a dose of .3 to 1 c.c. may suffice. If such maximum doses do not protect the patient during the season, larger doses must be reached the following year before the season begins. After the season starts it is usually necessary to reduce the dosage to prevent general reactions. The injected pollen added to that inhaled is too great for the patient's tolerance. It is well, however, to continue injections of as large doses as the patient can tolerate during the season and to continue such therapy thereafter every 7 to 14 days throughout the year, increasing the dose for about 2 months before the next season arrives. I favor such perennial therapy, feeling that it leads more rapidly to eventual desensitization so that the patient can be symptom free without therapy. Some still favor preseasonal therapy, however. Treatment should continue until skin reactivity practically disappears. This may require several years of continuous treatment and does not insure a cure. Prolonged therapy is justified especially when the patient can continue it himself, since without it pollinosis has a tendency to increase and cause invalidism and inadequacy.

Therapy during the pollen season is highly justified. It must not increase symptoms. Treatments may be given every day until relief has been obtained. Thereafter, the interval between injections can be gradually increased if desired and as soon as good control has occurred or the season finished, therapy can proceed according to the usual routine, continuing it through the year so that large preseasonal doses can be attained the following year. Phillips has obtained excellent results with intradermal injections during the season, and with preseasonal therapy. His recommendations have been followed by other allergists with excellent success.

Freeman and Duke have recommended the rush method of pollen therapy. Such therapy can only be given preseasonally or in a pollen free room during the season. The patient must remain under such conditions in the office or hospital all day and treatments may be given every 2 to 4 hours. The inclusion of 3 to 10 minims of a 1:1000 epinephrin solution with each dose and the placing of a tourniquet above the site of injection with its release for 1 to 2 minutes every 4 to 5 minutes for about one-half hour diminishes the speed of antigen absorption. Epinephrin must be immediately available. At times, maximum doses may be reached in 4 to 7 days. At other times, it is impossible to reach the 1-50 dilution without undesirable general reactions. In such patients, the rush method must be discontinued.

The administration of antigens containing animal emanation or miscellaneous allergens and dust, feed, fungi or other inhalant allergens must follow the same routine as described for pollen therapy. However, it is usually much more difficult to increase such antigens without exaggeration of symptoms than in pollen desensitization. This may be due to the frequency with which ambulatory patients continue to inhale causative allergens. Because of the marked allergenicity of horse dander, silk, flaxseed, cottonseed, and glue, and other animal emanations adequate desensitization is often difficult to obtain. However, with presistent effort over many months and at times years, protection may be obtained. We have desensitized many patients to horse and cow dander, dog and cat dander, guinea pig, deer, and mule dander, cottonseed, silk, and other similar allergens so that free inhalation of such substances has been possible without symptomatology. Exaggeration of symptoms during therapy always indicates a reduced dosage.

GENERAL REACTIONS: It is most important to warn all patients receiving therapy about the possibility of general reactions. They should be told that a local reaction is to be expected, that sometimes the dose may be slightly excessive so as to spread the reaction generally, and that hives swelling and itching of the skin, especially of the face, nasal congestion, hay fever, coughing or actual asthma may occur. Because of such possibilities, the patient should wait in the office for 15 to 20 minutes after each injection. Serious reactions arise during this time. The immediate injection of 1:1000 epinephrin in doses of from .3 to 1 cc. according to the age of the patient and the degree of the reaction is necessary and it should be repeated every 5 to 30 minutes and later every 1 to 4 hours according to the degree and persistency of the reaction. The immediate application of a tourniquet above the site of the injection reduces speed of antigen absorption into the blood. It should be released for 1 to 2 minutes every 4 to 5 minutes over a period of 30 or more minutes. If such a reaction arises after leaving the office, the patient must return immediately. He may well be provided with 1 or 2 ephedrine capsules, the ingestion of which will mitigate his symptoms before he arrives at the office.

Such general reactions of course indicate excessive dosage. The following injection must be reduced 2 or 3 doses. Such difficulty is especially prone to arise during the pollen season and as stated before, it is often impossible to increase and frequently necessary to decrease doses during such time.

OTHER THERAPEUTIC CONSIDERATIONS: Poor results in the treatment of inhalant allergy with environmental control and desensitization therapy may be due to many causes. It is most important to realize that ingestant, and at times bacterial allergy may also be present. Food allergy especially must be kept in mind with both children and adults and in the absence of satisfactory skin reactions. This necessitates the frequent and experienced use of trial diets for its diagnosis. Leucopenic index studies may be of help. Moreover, all

the causes of inhalant allergy may not be found. A constant analysis of the patient's possible susceptibility to pollens, animal emanations, dusts, and other inhalant substances than those already recognized must be made. In **bronchial asthma,** it is most necessary to appreciate the effect that retained mucus in the terminal bronchioles has on the perpetuation of symptoms. Because of this, the removal of such bronchial mucus is most important. Potassium nitrate and other smoke and various expectorants have long been used for this purpose. Recently we have described the beneficial effect of the inhalation of a vapor of 1:100 epinephrin solution on asthmatic symptoms after which mucus is often expectorated. More helpful is the intratracheal instillation of iodized oil which seems to aid in the loosening of tenacious thick mucus and to encourage its expectoration. It is possible that a plain oil may serve the same purpose. A non-antigenic vegetable oil should be chosen and mineral oil never used. Recently we have utilized bronchial lavage with a hypertonic solution in asthmatic patients as advised formerly by Stitt in patients with bronchiectasis. It is probable that a physiological salt solution is of equal value and that such lavage may replace the use of oil in certain cases. With expulsion of mucus, apparently poor results from antiallergic therapy often become eminently satisfactory.

In **nasal allergy,** low grade or marked infection of sinuses, extensive polyposis, and structural abnormalities of the nose, infected adenoids and tonsils may interfere with results. A conservative attitude, however, toward surgery is imperative. It should only be done for obvious infection and practically never until allergic therapy for a prolonged period has been carried out. Frequently rapid relief from nasal occlusion or congestion arises from an elimination diet, environmental control or desensitization therapy in the presence of definite polyposis or roentgen ray indications of infected sinuses. In nasal cases, the examination of nasal secretions for eosinophiles or pus cells often aids greatly in the diagnosis of the relative amount of allergy or infection in the patient.

In **cutaneous allergy,** the persistency of skin lesions from long standing sensitizations is important to keep in mind. Moreover, the effect of superimposed bacterial or fungoid infections, or of mechanical irritants and scratching, and the help to be obtained from skillful dermatological therapy must be remembered. I lay less stress on neuroses as a cause of dermatoses than do Becker and Stokes. Nervousness with its associated manifestations is more apt to be a result rather than a cause of allergic dermatoses. The frequency of bacterial and food allergy in the etiology of urticaria and angioneurotic edema is especially important to remember.

Finally it is imperative to discover all active pathology of all types in the patient being treated for inhalant allergy. Foci of infection and diseases in the gastrointestinal and urogenital tracts must be recognized and emphasis must be laid on the maintenance of health with proper rest, bathing, exercise, and a balanced nourishing diet of adequate mineral, and especially vitamin content. Keeping all of these ideas in mind, however, the final control of allergy ultimately depends on the discovery and proper treatment of all specific allergenic causes.

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THE TREATMENT OF HEART DISEASE BY THE GENERAL PRACTITIONER

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It seems unfortunate as one authority stated that heart disease has become a specialized field to large extent out of general practice. Sir James MacKenzie always contended that the general practitioner by reason of his familiarity with the habits and history of the patient was able to detect the earliest signs of disease. The general practitioner by reason of his close contact and supervision also is in a much better position than the specialist to carry out the treatment of heart disease.

Unfortunately, however, the general practitioner is often hampered by the traditional impression that digitalis, and digitalis alone, is

sufficient for the treatment of most cases of congestive heart failure. So firmly implanted is this tradition that digitalis is used in all forms of heart disease regardless of type and many times to the exclusion of other remedies frequently necessary to restore compensation.

Therefore, if the general practitioner accepts responsibility of treating heart failure he should be painstaking and thorough, utilizing all available therapeutic measures. In few other conditions can the skill and judgment of the physician be so accurately gauged by the response of the patient to medication.

In many cases of congestive heart failure complete bed rest, restriction of fluid to 1000 to 1500 c.c. daily and digitalis are sufficient to bring about satisfactory diuresis with marked amelioration of symptoms. To be effective digitalis must be given in such amounts that full effect is obtained in from 36 to 48 hours. This can usually be accomplished by giving one cat unit (1½ grains of the powdered leaf) per 10 pounds of patient's weight. If the drug is discontinued when certain toxic manifestations such as loss of appetite, vomiting, colored vision, mental depression and confusion appear the patient may obtain the maximum benefit from digitalis without danger.

Contrary to most authorities it is my impression that the average patient suffers from inadequate amounts of digitalis rather than from overdosage.

Unfortunately, many patients fail to react to the treatment outlined. The edema persists and its removal becomes more of a problem than the treatment of the underlying cardiac condition as the following case illustrates:

A Colorado rancher age 55 had congestive heart failure, following hypertension for 5 years. For a year he had dyspnea on exertion, fatigability, and muscular weakness. For 3 months he had moderate edema of the ankles, swelling of the abdomen and cough. His local physician had given him digitalis in adequate doses, but had not restricted his fluids, nor enforced bed rest. Examination showed orthopnea, cyanosis engorgement of ncek veins, marked edema of the extremities, and free fluid in the peritoneal cavity. Heart rate was 76, and regular. Fluoroscopic examination showed congestion at both bases. The heart was aortic in configuration, markedly enlarged in all diameters, especially in the region of the left ventricle. There was super-ventricular dilation and marked unfolding and tortuosity of the aorta. His urine had a slight trace of albumin, but no red blood cells. He was immediately given intravenously 2 c.c. of salyrgan diluted with an equal amount of distilled water. During the next 8 hours he passed 3000 c.c. of urine, the edema of his extremities disappeared and there was marked diminution in the size of the abdomen. Thereafter, he was given 5 enteric coated tablets, 7½ grains each, of potassium nitrate 4 times daily. He continued to receive 1½ grains of digitalis 3 times daily. He improved markedly. Evidence of congestive heart failure disappeared and he was able to be up and around the house. From time to time he suffered from dyspnea and precordial pains which were relieved by theobromin calcium salicylate, 7½ grains, 3 times daily after meals. At the end of 10 days swelling of the ankles again became noticeable and thereafter, he was given 4 doses of salyrgan 2 c.c. per dose intravenously every 5 to 9 days. He became edema free and returned to his home in a few months in moderately good health. This case illustrates that digitalis may not be effective in cardiac decompensation.

Some types of cardiac failure are apt to show marked edema. Hypertension with normal rythm is frequently associated with marked edema. These patients more than others show dramatic responses to mercurial diuretics when used with ammonium or potassium nitrate in massive doses. Moreover, dramatic improvement in the patient's condition may be obtained over and over again; I have observed no bad effects from the long continued use of these diuretics. Although most authorities state that the patient's tolerance toward mercurials should be tested by an initial injection of 0.5 c.c. intravenously. I give 2 c.c. of either salyrgan or mercupurin diluted with an equal amount of distilled water to avoid irritation of the vein, and repeat every 2 to 7 days for an indefinite period. The xanthine diuretics, although not as effective as the mercurials or as combinations of mercurials and potassium or ammonium nitrate are nevertheless valuable in early congestive failure and as an adjunct in pronounced failure. Their effect is produced

through stimulation of filtration through the glomeruli whereas the mercurials retard absorption of fluids by the renal tubules. They may be given by mouth in the form of theophyllin, theobromine sodium salicylate or theobromine calcium salicylate in doses of from 15 to 30 grains daily for long or short periods depending upon their producing gastric irritation. For the most part they are well tolerated. Aminophyllin may be given intravenously with generally satisfactory results. Ammonium chlorid, ammonium nitrate and potassium nitrate recently have come into popular use; as pointed out by Keith, potassium nitrate (7½ grain enteric coated tablet) is the preferable one, since it usually causes greater diuresis than the other drugs and is less likely to cause toxic symptoms than is ammonium nitrate. However, it is of the utmost importance that these salts be given in massive doses, as much as 150 grains daily in enteric coated tablets. Extensive clinical observation indicates that these salts are relatively non-toxic and may be given for indefinite periods, being on the alert, however, for toxic symptoms, which usually manifest themselves by the absence of diuresis after a few days administration of them. In my experience, potassium nitrate has been much more effective in producing diuresis than has ammonium nitrate, as the following case shows.

A 50-year-old white woman with congestive heart failure from hypertension recently seen in consultation had been ill for about 1 month, during which time she had been given adequate doses of digitalis, ammonium nitrate in large doses and several injections of mercurial diuretics. She was dyspneic with marked edema of the legs, abdomen, and buttocks, and probably fluid in the right pleural cavity. The x-ray showed marked cardiac enlargement, the left heart border being almost and the right entirely straight. This according to the roentgenologist suggests a decompensated heart—aortic in configuration. Potassium nitrate—150 to 190 grains daily for a period of 10 days to 2 weeks were given with an increase in her urinary output, and near disappearance of the edema—there being only slight residual edema of the extremities. It was my impression that the potassium salts together with the other measures employed was sufficient to bring about diuresis when ammonium nitrate had been unsuccessful.

Occasionally one encounters individuals who are unable to tolerate either the potassium or ammonium salts or salyrgan or other mercurials intravenously. A 65 year old male experienced a severe coronary occlusion in May. In the course of the next 2 weeks he evidently had a series of further occlusions, possibly 5 or 6 in number. Each time there was an extremely dangerous reaction. However, after the usual treatment with a theobromine derivative, digitalis, oxygen administration and morphine, he was able in 6 weeks to return to his home. He became able to be up and about his home but in November he developed generalized edema which was extremely harrassing and embarrassing to his comfort. He had marked dyspnea and although he was given xanthine derivatives, ammonium nitrate and digitalis, there was but little response. A mercurial diuretic was given intravenously on 2 or 3 occasions, but the immediate constitutional reaction was so unfavorable that it had to be abandoned. Because of the failure of the medication to improve the patient he was given 4 gms. urea 3 times daily after meals with a marked increase in urinary output. Intramuscular injections of 2 c.c. of salyrgan evacuated 3500 c.c. of urine in 24 hours. He continued to take urea which with occasional intramuscular injections of salyrgan were sufficient to keep him edema free until some months later when he died suddenly from coronary occlusion.

By far the most potent diuretics are the mercurials especially when preceded by a potassium or ammonium salt. Although salyrgan has been the favorite mercurial, mercupurin recently has become popular. It is a combination of organic mercurial and theophylline. This is certainly more potent than any other diuretic and is stated to be definitely less toxic than the simple mercurial. A disadvantage of mercurials is that they must be given either either intravenously or intramuscularly. Intravenous medication in many fat edematous patients is often extremely difficult especially if the superficial veins have been damaged. Intramuscular injections are frequently accompanied by irritation and discomfort. Within the last few months there has become available in this country a mercurial diuretic (mercurin) which may be administered by rectum. Mercurin is similar to mercuperin except that the

xanthine derative theophylline is omitted. Each suppository contains 0.5 grams mercurial salt which has 2.5 times the mercury used by the intravenous route. Ammonium or potassium salts for 24 to 48 hours preliminarily greatly enhances the diuretic action of the mercurin. Recently Parkinson and Thomson reported 12 patients treated with mercurin with no toxic or irritating effects and conclude that it is a safe and effective diuretic. I have used mercurin suppositories on 4 cases. The results were satisfactory in all respects except that the diuresis was less than that obtained by mercupurin intravenously, but was more prolonged.

Summary and conclusion: As Warfield has recently emphasized the physician should treat the patient with heart failure rather than the heart of the ill patient. The treatment of congestive failure frequently revolves around the question of the treatment of edema. Bed rest, fluid and salts restriction, with adequate digitalis is frequently not sufficient to rid the body of excess fluid. This occasionally can be done by the administration of a xanthine derivative such as theophylline. However, one must resort frequently to mercurial diuretics with potassium or ammonium nitrate. Mercurin by rectum is apparently a potent diuretic which because of its freedom from reaction and ease of administration should be employed extensively by the general practitioner.

The responsibility of caring for the patient with congestive heart failure is a grave one, and unless the physician is willing to avail himself of the most effective measures for the treatment of heart disease and the removal of fluid, the outcome may be disastrous.

DIAGNOSIS OF EARLY STRAIN OF HEARTS WITHOUT VALVULAR LESION

ORVILLE HARRY BROWN, M. D.
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Methods of determining slight cardiac inefficiency are the burden of my discourse. Much may be learned by examination of the heart, but more by the study of the patient.

To prove that many persons drive their hearts beyond the stage of efficient action calls for no research into the medical literature nor reporting of cases; the daily newspapers give adequate evidence. A problem, not surpassed in importance by even the cancer problem, is for physicians generally to recognize hearts that are being even slightly over-taxed. The person with valvular disease usually knows it and is heart concious and is likely to do the best possible not to over-tax his heart. The persons who have never given thought to their hearts are the ones most likely to go on and on until suddenly stopped by cardiac accidents.

An inefficient heart is usually dilated. Since hearts, like fists and noses, vary in size, it is impossible to know exactly the size any certain heart should be. Although the conformation of a thorax determines the position of the heart therein, there is no way of knowing the exact relationship of the heart's chambers to the heart's shadow. Dilation is anterior-posterior and vertically as well as latterly. A heart should not be over 12 cm. in width; one of 12 or even 11 cm. in diameter may be dilated; though hearts vary in size, shape, and position so that determining what should be normal is only possible within certain limits, the size of a heart should be ascertained as accurately as possible by all available means including fluoroscopic or x-ray film examinations. Many hearts not regarded by their owners or by their physicians as inefficient may be easily shown to be dilated beyond where circulatory efficiency is possible.

Many examinations are conducted when and where x-ray examinations are impractical, if not impossible. One must rely frequently therefore upon physical examinations: Inspection, percussion, palpation, and auscultation. My errors in diagnosing the sizes of hearts have decreased in proportion to the care I have exercised in checking the findings of one method of physical examination against those of the other three, and against the information gained by the study of the patient.

Inspection or palpation may locate the apex beat, but not always accurately, as the apex beat may seem farther out than the heart margin. Percussion and auscultation must be used for confirmation of the findings. Percussion to be of value must be extremely light, just heavy enough to be heard, (and one need only listen

for intensity, rather than pitch, changes) and perpendicular to a plane passing through the shoulder blades.

To demonstrate that the perpendicular stroke is important, percuss the rolled back of a church pew or similar object by holding the pleximeter finger in one place and strike it on one spot but at varying angles.

Auscultation will show a definite increase in intensity of the sounds when the stethoscope is moved from the left to just overlap the edge of the heart.

The systemic evidence of a slightly inefficient heart varies only in degree from those of a thoroughly decompensated heart.

Palpitation is common in even mild cardiac strain and should always be inquired about, and if the patient admits having had it an extensive investigation of the heart's work should be made.

Breathlessness may be slight and the patient may not be aware of it. He has probably done nothing to test himself in this respect and has become accustomed over long months or years to it so that he does not know how his breathing should be.

The length of time one can hold his breath gives valuable information; a stop watch is essential to test breath holding; then too those who have practiced holding their breath even with strained hearts do much better than those who have had no experience even with efficient hearts.

Edema is perhaps the safest criterion of inefficient heart action. It is easiest detected over the tibia by firm pressure for several seconds. The edema has usually existed for such prolonged periods that the tissues are firm with the liquid which is not easily pressed out of them.

Increased pulse frequency if present unless explainable by other pathology is definite indication of cardiac inefficiency. Pulse irregularities usually indicate advanced cardiac strain.

Cyanosis of lips and nails may be exceedingly valuable as an indicator of cardiac inefficiency if studied closely. Two nails on one hand, however, may vary so in pinkness or blueness that nail color is purely individualistic.

The filling of veins gives much information as to how efficiently a heart is doing its work. Dilated neck veins with the person erect unless from another cause is proof positive that the heart is being much over-taxed. It is well to have the collar loosened and to place the person horizontally in order to study the filling of neck veins. Adipose tissue may interfere with examinations of veins. All visible veins should be studied. Vein filling is much like cyanosis in being relative and individualistic but it is well to gain as much information as possible from them.

Repeated studies of a person will show variability in the findings at different times and the time of the most definite findings will coincide with periods of undue physical activity or mental stress and worry or emotional upsets, or toxemias.

No age is immune to cardiac inefficiency. Especially are children in athletics or who have been even years before in athletics likely to have definite evidence of cardiac inadequacy.

If in doubt as to whether a heart is or is not efficient, digitalize the patient and see if the supposed symptoms and signs of inefficiency disappear. Some hearts respond promptly to digitalis and rest and others extremely slowly.

When a heart has been dilated the pericardium is stretched probably never again to return to normal; for this reason digitalis may have to be relied upon more or less for the remainder of that person's life, to hold the heart to normal or near normal.

Early cardiac strain is a common condition perhaps a characteristically American disease found in large numbers of supposedly normal individuals. Because the heart has such tremendous reserve energy it often in fact usually goes on and on long after inefficiency may be easily and definitely demonstrated.

The many sudden deaths in persons leading active lives shows that the reserves have been depleted—not suddenly most likely, but gradually probably over years and years.

Summary: Slight cardiac inefficiency—slightly strained hearts—is recognizable by slight palpitation, breathlessness, increase in pulse rate, cyanosis, edema, overfilling of veins, and dilation.

TREATMENT OF ACUTE DISEASES OF THE EAR

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San Francisco, Calif.

(Read before the 45th Annual Session of the Arizona State Medical Association, April 23-25, 1936.)

The common acute diseases of the ear are of the external, middle and internal parts.

External ear: The commonest complaint is of pruritus and watery discharge with or without secondary infection, depending upon the will power of the patient and scratching implements available—the common weeping eczema. There is no permanent cure; but saturated aluminum acetate solution is most useful with occasional exposure to x-ray, using a 70 R. dose. Calamin ointment is of service with external excoriations. Attention to diet, i. e., restriction of excessive carbohydrate intake, may help and clearing of similar lesions of the adjacent scalp must be attempted. In this and the dry form, use of soap and water must be avoided as they markedly aggravate the condition. The dry variety is treated by a mild mercurial ointment.

The commonest complications of external otitis are impetigo and furunculosis. For the former, 3% ammoniated mercury ointment and 10% silver nitrate serve well. For the latter, our ingenuity is often taxed as they tend to recur in what seems an endless succession. We prefer to allow all of these to point, aiding this by applying dry heat usually from a high candle-power light. Early incision merely adds to the pain and gains nothing in shortening the duration. A fine wick soaked in merthiolate (1-4000) aids the drainage when it has pointed. Sedatives are usually necessary, as the pain is intense. Recurrence should suggest a urinalysis and blood sugar estimation. In obstinate cases an autogenous vaccine and bacteriophage used locally have been of material service. We have not found the various preparations of tin, yeast, etc., of value.

The various moulds are much more troublesome in the tropics than in our climate, but they are frequently seen in workers around fruit, particularly apples and in those who swim in unsanitary pools. In this category are those rare cases of streptothrix and actinomycosis. For the common moulds we have used equal parts of alcohol 80% and (1-5000) bichloride of mercury. Thymol 2% in 95% alcohol is effective but strenuous therapy. Some prefer a 1% alcoholic solution of salicylic acid. The uncommon fungus infections occur mostly in livestock handlers and appear as obstinate furunculosis, the individual lesions of which refuse to heal. The diagnosis is made from microscopic slides, or rarely from the sulfur granules if it be actinomycosis. We have seen 2 cases of streptothrix, both fatal, in which massive doses of iodides and x-ray were of no effect. New, of the Mayo Clinic reports success in actinomycosis with iodine locally, iodides internally plus x-ray or radium. The prognosis seems to depend on whether bony involvement is present, being invariably bad when occurring and fair when involving the soft tissues.

The common **acute middle ear** conditions are serous and purulent. The serous are typified by intermittent pain, redness of the drum (without loss of reflex) and retraction. The temperature is normal or slight and the bubbling noises are bothersome. It is most common after aeroplane flights where there is disturbance of nasal and eustachian ventilation. In a few hours a yellowish exudate or transudate may be seen, above which is an air bubble if the fluid does not completely fill the ear. The treatment consists in nasal shrinking plus slight inflation. If this fails to clear the condition, paracentesis under strict asepsis should be done followed by inflation to expel the fluid. Inflation or paracentesis is never done in the presence of an acute rhinitis. Obstinate cases require diet correction and the elimination of tobacco and alcohol.

Purulent otitis is always best treated by early and wide paracentesis, where possible, under light anesthesia to secure an adequate incision. In fulminating cases it is well to remember that this does not relieve pain for the mastoid is involved as indicated by the copious discharge, and fluid under tension in the cells causes pain. Most of the cases recover without a mastoid operation. The paracentesis may seem puerile as there are many who believe in letting the drum rupture. As an example of this ultra-conservatism I speak feelingly, having had a chronic ear therefrom, a radical mastoidectomy and a deaf ear. Having secured

drainage, I believe that the wick treatment and suction in the hands of a skilled nurse, or mother who has sufficient time, is the better. However, for the greatest good to the greatest number, irrigation with a sterile warm solution is best to ensure canal cleansing. There is no hard and fast rule as to when an acute otitis and mastoiditis become surgical. Each case is individual in which the clinical picture as a whole is considered, i. e., the causal disease, such as measles or scarlet fever, pneumonia or the common cold, the temperature, patient's appearance and, lastly, the local condition as shown by examination. Laboratory findings, such as blood count and x-ray are of lesser value. In general, I believe that a late operation is always preferable because of better quicker healing, though I do not hesitate to operate if conditions demand it.

The acute **traumatic lesions of the middle ear** are from concussion sufficient to rupture the drum, penetrating foreign bodies or attempts to remove foreign bodies. These may or may not be accompanied by hemorrhage into the middle ear. The treatment of ruptures of the drum is simple; do nothing as infection rarely occurs, unless the injury has occurred while swimming under water and almost always occurs when irrigation or drops are used.

Fractures of the skull accompanied by bleeding from the ear usually indicates a transverse fracture of the petrous. In some cases as the bleeding becomes less it is apparent that cerebro-spinal fluid is escaping. Under no circumstances is early irrigation justified, because of the risk of meningitis. If ceruminous plugs are present, they should be removed by sterile curettes. The external ear should be kept clean by sterile applicators and tincture of merthiolate. Should a fulminating otitis and mastoiditis ensue and there be no meningeal signs, we believe a mastoidectmoy is indicated to ensure efficient drainage outward. The wound should be left wide open and the operative procedures done as much as possible by sharp rongeurs to escape manipulation of the fracture by hammering on gouges or the lever action of curettes. The lavage of the outward flowing spinal fluid helps to prevent inward spread of infection.

Meniere's syndrome characterized by nystagmus, vertigo of a rotary character, nausea and vomiting, is best treated by removing the etiological factor which may be leukemia, lues, vasomotor in vagotonics, sclerosis of the internal auditory artery with resultant lack of ability to respond to quick changes of position, toxic neuritis from drugs (tobacco, barbiturates, quinine) or from focal infections (most often apical dental abscesses), multiple sclerosis, and intra-cranial growths in the cerebellopontive angle.

The symptomatic treatment consists in absolute rest on the side to which the nystagmus is directed so that the nystagmus is not increased by looking up which the patient will do whenever spoken to.

DISCUSSION

DR. ISAAC H. JONES: Of acute conditions of the ear, mastoiditis is one of the serious omens to raise its ugly head. Let me sound a warning: Do not rush into this serious operation. Give the most careful treatment and if possible wait 2 to 3 weeks before operating. This is most difficult for in the interim the physician is carrying a load of anxiety and the patient a burden of pain. There is no set rule as to when a mastoiditis must be treated surgically. A late operation is preferable because of better quicker healing; for this reason I say delay the operation; but operate if conditions actually demand it.

One other thing: With noises in the ear think of neuroma of the 8th nerve. This is often overlooked; yet tumors of the 8th nerve constitute 10% of all head tumors.

DR. LEMMON: The otologist does not always see these cases first. More often than not it is the general practitioner who first is consulted. My advice is for the general physician to equip himself with an electric otoscope. I consider it valuable. The ear should be opened and treated early, making an early recovery possible. Personally I feel guilty when a case runs into a mastoid. My sense of guilt is the more intensified when I confess that my own son developed a surgical mastoid. Study the ear drum. Stop the use of "drops" which only make a complete mess of things. Cure the "colds" and ear troubles will lessen.

DR. H. T. BAILEY: Often we hear of some one's giving ear drops composed principally of glycerine. This is a good culture medium for aspergillus niger. Many times when you find aspergillus niger in the ear you will find that some one has been using ear drops with glycerine in it.

One of the worst things the insurance companies have to contend with in ear diseases is suppurativa otitis media. If a patient has had an acute discharging ear and it has healed completely there is likely to be no need of raising the premium rate, but if the ear has discharged again after healing, the premium rate should be raised from 15 to 25 per cent.

The location of the perforation or hole in the drum has much significance also. If the hole is in the anterior part of the drum we do not consider it serious; if the hole is near the posterior wall and the lower floor, say at eight o'clock, there is more danger than if it is anterior; and if the hole is above and near the posterior wall, say at 10 or 11 o'clock, it is best not to give that person insurance.

These observations also apply to industrial cases.

DR. MARTIN: I agree that it is a good policy to await developments in mastoiditis. A delayed operation means a better healing and less opportunity for complications. A wait of 8 days, other things being equal, will be found advantageous. Do not overlook the symptoms of tenderness and dizziness and do not hesitate to operate if immediate conditions call for it. What Dr. Bailey has stated in reference to glycerine is quite true. The use of soap and water for these ears is also to be shunned. Irrigation with a sterile warm solution is best to ensure canal cleansing.

As to the use of the otoscope, I do not use one as I am all thumbs in its use. I do not subscribe to the doctor's sense of guilt when mastoiditis develops. There are too many factors to consider in assuming such a guilt. The situation is quite often beyond one's control. One naturally feels badly when he has treated the case from the start and mastoiditis occurs; however, I do not feel remiss when this happens.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.
Director New Mexico State Bureau of Public Health

July 9 to 11 the health officers from the 10 New Mexico districts met for their second conference—with full attendance maintained throughout the meeting as before. Dr. J. C. Mitchell, with a Johns Hopkins C. P. H. on which the ink was scarcely dry, gave us the latest scientific news. Old timers like Drs. C. W. Gerber, O. E. Puckett and James R. Scott gave us the benefit of long experience in administrative practice in the Southwest. Present as a guest was Dr. Albert Hardy of Columbia University who gave us valuable assistance in revising the regulations governing communicable disease, especially in regard to undulant fever.

Dr. Hardy is in New Mexico organizing on behalf of the U. S. Public Health Service a research project to determine the extent and epidemiology of dysentery in this state. The research was begun last summer and with the cooperation of Dr. L. A. Dewey, state epidemiologist, and Miss Myrtle Greenfield, laboratory director, will be continued for at least 2 more years. Dr. Hardy outlined his plans for the present summer. These include the bacteriological examination of several stool specimens from each of a number of patients in all parts of the state and intensive studies of selected communities and families to determine if possible the presence among them of chronic carriers. It was agreed that "acute diarrhea and enteritis" be added to the list of notifiable diseases in order not only to assist in this research project but also to aid in the control of dysentery.

Changes in the regulations governing the control of communicable disease were recommended by this conference and adopted next day by the State Board of Public Welfare. Copies of the revised regulations will be available as soon as printed. The most important addition is a paragraph on the control of typhoid fever carriers.

The conference was deeply concerned by our failure to secure treatment of syphilis in its early contagious stages. The following resolution was adopted unanimously and forwarded to the secretary of the New Mexico Pharmaceutical Association:

WHEREAS the prevention of the spread of syphilis depends upon its treatment in the early contagious stage, and

WHEREAS in 3 years only 2 requests have been made to the state laboratory for diagnostic outfits for use in the early sero-negative stage, and

WHEREAS we have heard evidence that in the early stages many people seek and secure prescriptions from drug stores, and

WHEREAS it is incontrovertible that treatment secured in this way is of no value for the cure of syphilis or the elimination of contagion

NOW THEREFORE BE IT RESOLVED that this second conference of the New Mexico District Health Officers urge the New Mexico Pharmaceutical Association to take whatever steps it finds practicable to discourage and prevent prescribing by drug store clerks and pharmacists for syphilis and that they encourage all pharmacists in the state to urge upon their customers the great importance to themselves as well as to the public health of immediate medical treatment for this disease.

Another resolution thanked the New Mexico Relief and Security Authority for supplying funds to purchase arsenicals for the treatment, of those who have syphilis and cannot pay for the needed drugs.

MEDICAL ANNALS OF ARIZONA

Mental Traits and Mental Diseases of the Navajo.

(Continued from July issue)

II. Prevalent Diseases of the Navajo.

From what has been said about the life of the people, certain diseases may be expected as a natural sequel. Thus we find tuberculosis and gastro-intestinal diseases, the latter especially among infants and children, taking heavy toll in deaths and morbidity. The death rate from tuberculosis is 10 to 15 times as great as among the general population of Arizona and 17 times that of the registered areas in the United States. The death rate from intestinal disease cannot be estimated or compared, but is known to be very high. Annually, in the autumn, it takes on the proportions of an epidemic, usually in the nature of a dysentery that dehydrates and often kills inside of a week. It is interesting to note that comparatively few cases of appendicitis are encountered, while there is a frequent finding of gallstones, kidney, and bladder-stones. Trachoma is prevalent among 20 per cent or more of the population[1]. The government has had trachoma specialists in the area for a quarter of a century, with but little control of the disease. The mode of life, congested and smoky quarters without proper ventilation, conjunctival irritation incident to the desert climate, disregard for the contagiousness of the disease, and failure to get necessary medical attention, are the perpetuators of trachoma.

The Navajos are subject to practically all the diseases encountered in the white population, with a high susceptibility to some and a relative immunity to others. Diseases of childhood, such as measles, mumps, whooping cough, chicken pox, small pox and diphtheria, are endemic. Scarlet fever is rare. In epidemic outbreaks of these diseases high susceptibility is evident. I found an epidemic of mumps at a boarding school affecting 90 per cent of the children[2] though only one or two persons outside the school were infected. Similar experiences with other infectious diseases are recounted by physicians in the Indian service. Influenza takes a heavy toll when it reaches the reservation. Skin diseases, especially scabies, are common. Impetigo is especially prevalent among the reservation boarding schools and in the infant population. Pediculosis, in its several forms, is highly prevalent due to living conditions and infrequent change of clothing. Sometimes several families in a particular locality will ask relief from scabies or lice. The latter parasite they accept stoically as necessary.

The Navajos, however, do cleanse themselves. They use a bath similar to the Russian's. There are regular bath-houses, dome-shaped adobe huts with only a small door, and no further vent. Bathing is usually a social event for one or more families. In the small hut stones are heated, and the place is crowded with young and old, male and female. The males are naked except for loin-cloths and the women wear their many skirts. They stay in the bath until they have sweated to their satisfaction or are too exhausted, then with fresh water from a bucket they wash themselves. There is never difficulty in the hospital in getting them to use a bath tub. Convalescent women, and even men, try to get their clothes washed and hair shampooed before going home. The Navajos really enjoy cleanliness. Under the handicap of primitive living and dire scarcity of water, they are cleaner than some elements in large cities, and would keep as clean as any average family elsewhere had they the facilities.

Constitutional diseases — cardio-renal, the scourge of the white man today, anemias, malignancies, diabetes and allergic disease—are uncommon among them. In two years the total number I encountered can be counted on the fingers, probably of one hand. I found not a single case of true primary anemia or diabetes; one case of allergic disease, sensitive to horses, was seen in a middle-aged woman who had lived all her life on the reservation, and one case of cancer, a rodent ulcer in an old woman. Cases of cancer of the uterus or the breast are sometimes, but rarely, encountered. Heart disease, per se, is rare. It is a safe prediction that if a Navajo survives his infancy and escapes tuberculosis, he will live to a ripe old age without concern over high blood pressure, angina pectoris, or appendicitis.

Tuberculosis contributes the most to the mortality rate among the Navajos. A high susceptibility to and a high mortality rate from tuberculosis among the American Indians has

been long recognized. In "The Problems of Indian Administration,"[3] published in 1928, the incidence of tuberculosis among Indians is estimated at 10 per cent, and deaths from this disease at 6.3 per M. of population. For Arizona, where the Navajos number over 50 per cent of the Indian population, the death rate from tuberculosis is given as 15.1 per M, or 17 times the rate in the general population for 1925. Hancock[4] claims to have found 54.9 per cent positive reactions in 450 school children given the Mantoux test for tuberculosis. Of these, the sixth grade children, ages 12 to 14, 70 per cent were positive. Before I was long on the reservation, the impression became deeply rooted that there is an appallingly high incidence of tuberculosis among the Navajos.

It would seem as if their outdoor life and the desert sun should be ample protection and this, in many instances, is true. One sees not a few adults who have recovered from laryngeal and glandular tuberculosis, and undoubtedly there must also be similar cases of the pulmonary type but this cannot be said with certainty, because the residual evidence is not so readily diagnosed. Tuberculosis is a relatively new disease among the Indians. Guthrie[5] says: "Evidence that tuberculosis existed among the Indians prior to the advent of the white man is apparently lacking." There are a few Navajos living who remember the internment of their tribe at Ft. Sumner and they say the disease was rare in those days. Apparently they have not had time to build a racial immunity or resistance. They have not yet learned to appreciate the significance of the early symptoms of the disease. This, in part, accounts for the high mortality rate. When applying for treatment, many of them are in the terminal stages of the disease. Their living conditions and their habits undoubtedly contribute heavily to the spread and perpetuation of the disease. Guthrie says: "The major problems from the health standpoint in the Indian country are, first: tuberculosis, second: factors which are reponsible for a high death rate in infants and children, and third: trachoma." This summary, in every detail, fits the situation in the Navajo country as I saw it.

The Navajos are a very fertile people and the women go through many pregnancies. Considering the appalling infant mortality, it is only through the high birth rate that they have managed to increase their numbers. Seventy years ago there were only about 30,000 where now they number close to 50,000. As previously noted, the average family is about 5, which is appreciably above the average white family. Diseases and anomalies incident to female physiology are not uncommon. Various anomalies of menses are encountered; the menarche may be any time from age 12 to 15 and the menopause from 42 to 45. Abortions and miscarriages, induced or spontaneous, are frequent. I have often done manual removal of placentas following incomplete abortion, generally on the floor of the hogan because of difficulty in moving the patient or refusal by the family to let her go to the hospital. Not a single case of ill effect is recalled. It is left to obstetricians to explain this on a basis other than the immunity of the patient to the infectious agents of her environment. In two years work only one obstetrical case was lost and this was a hospital case. The woman went through an uneventful confinement and at the end of 10 days went home. She immediately proceeded to catch up with her housecleaning, and as it was winter, this necessitated gathering buckets of snow to convert into water. Approximately 5 days later she was returned to the hospital in a serious condition with high fever, suppression of urine, and foul discharge. The final diagnosis was puerperal sepsis with renal complications. Because the patient had run temperature early in her puerperium, it was felt she might have been infected in the hospital, an environment foreign to her constitution. In contrast, a few obstetrical deliveries, including the use of forceps and repair of perineum, were made in hogans, without loss. Complicated and difficult labors are not uncommon among them; in fact, most of the cases in my experience had complications. For instance, there was one case of arm presentation, with the presenting part in full view on first examination; another case[6] of acute hydramnios when a hydrocephalic anophthalmic monstrosity was delivered after the medicine men had labored over the patient for a week, and many other lesser complications. Government physicians see only a small per cent of the labors; they are generally called only when there is serious trouble.

The remark has been heard from visitors to the reservation, persons of intelligence and ed-

ucation, to the effect: "These people must be rotten with venereal disease." The Navajos are not rotten with venereal disease; certainly not as rotten as certain elements in the general population, and certainly less so than the dregs in the white fringe of the Navajo reservation. The incidence of venereal disease, making allowance for living conditions and for neglect of care of active cases, is comparatively small, except in neighborhoods of many mixed breeds and of close proximity to white settlements. Guthrie[5] in 1929, wrote: "Venereal disease is a factor of serious importance on relatively few Indian reservations. It constitutes a problem where groups of Indians have money to spend and are in close contact with elements of the white population where vice is rampant, and where, generally speaking, law and order are difficult of enforcement or are not maintained."

An analysis of 2258 Wassermann tests, 1763 at a non-reservation boarding school and hospital[7], and 495 at a boarding school on the Navajo reservation, casts light on the situation. Of the 1763 there were 633 non-school patients with an average age of 27 years, the youngest 5 and the oldest 85, grouped into 467 northern and southern Pueblos, 101 Navajos, and 65 unclassified representing in small numbers several tribes from other localities. For the Pueblo Indians 18.2 per cent were positive, Navajos 11.88 per cent, the others 15.38 per cent. These Wassermanns were gathered between January, 1932, and August, 1933, from a fairly large Indian service hospital with an active outpatient department, and represent only a part of the attendance for the period, including suspected cases; hence the actual per cent for the respective groups is probably lower. These figures bear out Guthrie's observation. The figures for the Navajos are probably much too high, since most of them are referred cases from reservation hospitals; hence they are not representative of the population. It is my experience that there is a relatively low incidence of syphilis in the adult Navajo population.

A low incidence of congenital syphilis generally indicates a correspondingly low incidence in the adult population, and vice versa. This seems true of our findings. Of 1130 Wassermanns on students with an average age of 15.8 years, there were 386 from the Pueblos with an incidence of 4.34 per cent positive, 151 "others" 4.636 per cent, 489 Navajos 1.636 per cent and 122 Hopis 1.639 per cent. The Hopis, though they live in pueblos, are located within the Navajo reservation and their opportunities for contact with white neighbors are only slightly greater. Of 495 Wassermanns on students with a probable average age of 10-12 years at a reservation boarding school, there were only 0.4 per cent positive, or 1.016 per cent for the combined Navajo students of 489 and 495. For tribes other than those mentioned, a communication from the Surgeon General's office in 1933, without specifying whether the figures were for or included children, gave the incidence of positive Wassermanns as 15 per cent for the Red Lake Indians in a survey of 1,275, and six per cent for the Cherokee Indians in a survey of 1,080. The superintendent of the Crow Creek Indian agency states that of 450 Wassermanns taken on the Crow Creek side there were 22 positive, or 4.89 per cent, and of 230 Wassermanns taken on the Lower Brule there were only 3 positive, or 1.3 per cent.

A positive Wassermann is usually accepted as conclusive evidence of syphilis in the particular individual. Yet, being a laboratory procedure involving fine serological reactions, including the handling of the specimen by more than one individual, errors are apt to appear in the final figures. When a large series of tests are considered, most of them single specimens, the chances of error are even greater. Of the 495 Wassermanns on reservation school children, 375 were taken the previous year. Of the latter, 7 cases were positive. All of these had some treatment, but hardly sufficient to explain that of the seven only 2 were positive when they returned from their summer vacations. Of the positives found in the 1763 group, only a few had repeats. It is safe to conclude that the incidence among Navajo school children is probably even lower than our figures indicate, and compare favorably with figures for children in the general population.

Concerning the prevalence of gonorrhea among the Navajos, Hancock[4], who served on the Navajo reservation for some time, says: "This disease is either relatively rare or one does not see many of the cases. I have seen only 8 cases since April 1, 1932. No acute cases of gonorrheal salpingitis have been seen."

While apparently he speaks of his time with the Apaches, he undoubtedly remembers his experience with the Navajos, because he does take into account his experience with them in other diseases. I was impressed that so few cases asked for treatment. In June, 1933, I examined 511 adult males, 18 years or over, for Federal employment. There were 16 active cases of urethritis which were considered as gonorrheal, or 3.13 per cent for the group. It is possible that the actual incidence may be higher, since it was generally known to the Indians that the disease disqualified for employment.

"What is the mental make-up of the Navajo?," is a question frequently asked. The average person's conception is from the appearance of the wooden or bronze Indian which formerly decorated entrances to cigar stores—a mirthless, stolid, cruel individual. The Navajo is honest towards his own people; it is sport and justifiable to steal from a white man, but there are many who are honest even towards him, as many traders can testify. He is responsive to friendship and favors. He is not without humor and playfulness peculiarly native. He is fond of games, gambling and races, and his ingenuity in this respect seems without bounds. The Government has found it necessary to enforce stringent rules against gambling because many played away their every possession. The women are just as strongly given to gambling as the men, if not more so. Their stoicism, which so frequently impresses the casual visitor, is superficial. While, during the severe winters of '32 and '33, many complained of their hardships, even to the extent of begging for birth control instructions in order not to bring more offspring for the same lot, they really lead a rather thoughtless, happy existence. They make appropriate emotional response to adversities; the Indian patient does not just lie down and die, nor does the family accept the death of a dear one without a great deal of lacrimation and prolonged mourning. It is common to find parents or other members of the family parked on the steps of the hospital for days while the outcome of an operation or serious illness is in the balance.

The Navajo believes strongly in witchcraft. Not many years ago an Indian was threatened with death and had to leave the neighborhood because he had threatened to kill by magic a certain person. He claimed to have exercised his magic with success on other Indians and when the supposed last victim died from an unknown illness, the natives were ready to kill the witch. These magic performers are usually old medicine men; occasionally a woman "possesses" special mystic power.

A search through the literature on the incidence and types of psychoses reveal nothing of a conclusive character because of the small number of cases studied. Certain general observations for the American Indians as a whole deserve mention. The incidence of commitable cases, based upon the number of Indians known to be psychotic, is probably about 1:1000. One worker notes a preponderance of manic-depressives, few cases of praecox, and the greater frequency of auditory and visual hallucinations. Another states: "Our own group of patients includes a relatively larger number of schizophrenics and mentally defectives." I know of only 2 persons committed from the Navajo Reservation during 2 years of service. They were both schizophrenics; both were women. The difficulties in evaluating psychoses in Indians is apparent; their superstitions and beliefs may be crazy ideas to a white man and be acceptable normal views to the Indian.

The writer did not see a single case of paresis. Adams and Kanner[8] claim it is an indisputable fact that general paralysis is rare among the Indians. This they consider admits the conclusions that syphilis is an American disease and that the power of the spirocheta pallida to produce paresis in Indians is attenuated, an acceptable immunologic observation if the first conclusion is correct.

Epilepsy, and various manifestations of hysteroid episodes were seen. Epilepsy is relatively common in both old and young individuals. The Indian shows great concern over this malady; he is frightened by the convulsion, believing an evil spirit seeks expression through the patient. Of the hysteroid cases there were encountered convulsions, catalepsies, anesthesias, aphonia, and inanition from long starvation. Two impressive instances are recalled. One woman about 35, married to a very old Indian, had been sick more than a year. There had been many "sings" for her

(Continued on page 317)

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ADEQUATE MEDICAL CARE FOR THE INDIGENT.

We believe that the members of the medical profession generally believe that their services are extremely valuable and necessary in promoting longevity and happiness of the human race. We believe also that the members of the medical profession also believe that this attention is not supplied when actually needed except in rare and unusual instances by cultists, lay persons, or anyone not thoroughly trained in the medical sciences.

If the above premise is true should not the members of the medical profession make it their solemn duty to plan that all individuals have opportunity for obtaining this attention. It would seem that such is the case.

Therefore is it not the duty of the officers and house of delegates of the American Medical Association to consider this general problem and to lay comprehensive plans for its proper solution? The special problems in each local community should be attacked by the members of the local profession.

Persons in comfortable financial circumstances need relatively little consideration as they are able, and undoubtedly prefer, to make and should make their own plans for the medical care of their families. The low income groups and indigents, however, are potential wards of the state since they are prone to become delinquents whenever their stress of circumstances is excessive.

What shall a man do when he has no money and his family is hungry or needs medical attention or both? Shall he beg? Shall he steal? Shall he use his credit providing it has not already been exhausted? We have repeatedly heard men say that they much prefer stealing to begging; therefore, there must be an enormous amount of stealing by persons who are never apprehended.

It seems to us that the supplying of groceries to the hungry destitute belongs in the same category as supplying medical attention to the sick destitute individuals. The supplying of groceries, however, is not a problem of the medical profession except in so far as members of the medical profession are citizens, and as lack of proper food contributes to illness.

Every community or nearly every community has its destitute and so-called poor who are not able to supply for themselves the necessities of life. As a general rule the governing boards of the counties have the duty of giving to these unfortunates the things and attention including medical attention that they actually need and want.

If the medical attention given this group of individuals in a community is on a par with that obtained by those in affluence then the members of the medical profession need make no further plans; but it would seem to be the duty of the organized medical profession of a community to determine if the medical attention given the destitute individuals of the community is on a par with that obtained by the more prosperous of the community. If and when it is found to be inadequate as it usually is, not as excellent in every way as that given those in the better walks of life, steps should be taken to rectify the difference.

If the organized medical profesion doesn't assume responsibility for the medical attention of the poor and the low income groups, there is apt to be, there will be, it seems to us, an

effort, and sooner or later a successful one, on the part of the lay public to do this.

The plans which the lay public will make for giving medical care to the indigents will probably be vastly different than those that the medical profession would wish and should make.

We presume that many county medical societies would promptly answer by saying that we are already giving care to our indigents; we have a county physician, or physicians, paid to do this. It is probable, although unlikely, in most counties that the county physician system is ideal. The county physician system in every instance should be at least under a careful assumed scrutiny of the county medical society.

The ordinary county physician system, it should be understood, is in reality state medicine, a fine sample in miniature of that for which so much clamoring is now being made. The proponents of state medicine, however, would include with the indigents all members of the low income groups; therefore, whatever evils there are in the present system would simply be magnified by the addition of those with low incomes.

There is no argument that would convince those who have had to rely upon the county physicians that state medicine should supplant the present system of private medical practice.

The ideal system for giving indigents the necessary medical attention would be to permit each indigent to seek attention from the physician of his choice and for the physicians to send their usual bills for such medical attention to the county treasuries for payment; this of course is out of the question.

We believe, however, that a plan must be worked out where the indigent will have choice of physicians and the physicians paid from the public treasury. In cities where there are medical institutions with teaching clinics, medical attention is given to the indigents for the privilege of their being used as teaching subjects. There is no need in such events for calls upon the county treasuries to pay the physicians.

In the plan which provides that indigents go to private physicians and be paid for their services by the county, the set-up should give due consideration to a number of points. It should be ascertained in any community how many physicians are willing to care for the indigents at a fee which would merely include actual extra cost, or very little more, engendered by the extra work. The physicians must consider that their profit from such work is the post graduate training obtained by seeing this extra number of patients of a type who often present unusual conditions for study.

In case a physician should not care for his indigent patients to be mixed with his private patients it would be easy for him to set aside special hours for seeing them or perhaps he would prefer to see them in an entirely different office. In such an event there might be several physicians of this same turn of mind who would group together and rent space near by their regular offices so that their regular equipment could be used for giving adequate medical attention without extra expense. It might be best for the county authorities to supply clinic rooms, equipment, and technicians and for the physicians to donate their time because of the post graduate training obtained from the extra number of patients. The interesting cases could be grouped and shown at the meetings of the county medical society. In such an event everything should be arranged most conveniently for the physicians. These are details which can be worked out and which should be worked out more or less thoroughly by the organized profession.

These thoughts upon the development of such a plan are probably extremely crude. They are intended, however, to be merely suggestions and granules from which pearls may grow.

The present county physician system in most instances is seriously faulty—not because of the integrity or medical capacity of the county physicians, but partially because the county physicians are not paid living wages and with no assurance of tenure of office; change of the political complexion of the county offices practically always changes county physicians. Unless a physician so employed gives attention to his private office during his tenure of office as county physician, he will have little or nothing to live upon for several years after being dismissed from his post as county physician. Because of these facts, he usually spends as little time as possible in taking care of county patients, and as much time as possible in taking care of his private patients. He is not at fault,

we repeat, for this dilemma. The indigent patients, however, suffer.

In addition to the strictly county patient, the southwest has a class of indigent patients which most of the rest of the counties of the nation do not have. Because of the climatic advantages possessed by the southwest, a great many persons come because of pulmonary, rheumatic, sinus, and other conditions which are more amenable to treatment in a mild equable climate, or at least are reputed to be, than in more rigorous climates; and many of these persons are indigents. Until these patients have been with us a year, at least this is true in Arizona, they cannot become county charges. They therefore become charges of the community chest or welfare league, or other charitable organizations and indirectly burden the taxpayers; and this burden really belongs to the respective home communities of the various patients.

This again then offers our medical profession an opportunity, yes, a duty, to work out plans for an equitable adjustment of such questions.

None of these problems must have immediate solution and probably none of them can have, but this is no excuse for dilatory tactics on the part of the medical profession.

The point is that the medical profession must settle these questions or the lay public will settle them in their own way and perhaps without seeking advice of the profession.

STATE MEDICINE EXISTS

There is constant talk about the coming of state medicine. State medicine isn't just coming; it is here. We have had it for a long time. The states take care of the insane, and the poor, and in many places the tuberculous; the Federal Government cares for the veterans of the world war and for many others. There are many county and city hospitals throughout the country which give at least emergency treatment to many who are not poor.

We heard an address by Dr. E. H. Skinner, of Kansas City, Mo., who so ably chairmaned the committee which "put on" the recent splendid meeting of the American Medical Association at Kansas City, in which he said that we must beware or the next medical work to be taken over by the state is the care and treatment of cancer patients. The May Bulletin of the American Society for the Control of Cancer contains an article by George C. Wilson, M. D. part of which is as follows:

"Cancer is a public health problem and as such its control becomes one of the duties of the state. The fund necessary for the conduct of such control should be met by contributions from all of the people who will be benefited. This means that the money should come from the taxpayers, from the public treasury, and the appropriation for the use of such money for any and all phases of cancer control authorized by a legislative act

"When the people of a state, through its legislative representatives, have been convinced of the need for such legislation, certain definite advantages appear at once. In the first place, cancer control has thereby been definitely accepted as a part of the state's activities, and unless proved an inadvisable or unsatisfactory expenditure, will continue to be accepted as a permanent part of the state program. In the second place, the significance of the movement as well as the weight of authority is greater if such activity is an integral part of a state program than when it is under private auspices . . . . ."

What, if anything, should be done? How shall we do what should be done? It is well that the powers that be give due consideration to the question.

DR. E. PAYNE PALMER HONORED

An invitation from The National Exceutive Committee of the 2nd. International Congress of Scientific and Social Campaign Against Cancer to attend this year's meeting and to present a paper came as a distinct surprise to Dr. E. Payne Palmer. A second surprise was when the American College of Surgeons asked him to be its sole representative at the Congress and to prepare a story of the College's activities against cancer. As this meant two appearances for Dr. Palmer upon the program, he at once wrote the executive committee and asked to withdraw his first paper but was refused.

Dr. Palmer therefore presents two papers before this great international audience. The first is entitled "The Incidence of Cancer among the Indians of the United States and Canada," and the second "The Activities of the American College of Surgeons against Cancer."

The Southwest, especially its medical pro-

fession, should feel signally honored in having one of its own men, a former president of the Southwestern Medical Association and a past president of the now defunct Arizona Academy of Medicine, selected to represent the entire North American continent and to give two papers at this most important second meeting of an international congress for the study of cancer.

'LIFE OF LOUIS PASTEUR'

It was our privilege recently to witness the film in which Paul Muni portrays the life of the great scientist, Louis Pasteur. To say that we enjoyed the picture is putting it mildly. That it wasn't entirely fact throughout makes it none the less the truth; it's instructive and entertaining. It is a great picture done magnificently. We were so thrilled that we sat on the edge of the seat and had to be constantly wiping the tears from our eyes and glasses in order to see the picture. To one who has read much of Louis Pasteur and has seen his photographs and the artists' portrayal of him on canvas and knows something of laboratories it was as though Pasteur himself was in the laboratory and we were living back in that day and privileged to be there with him. What was more remarkable was that the members of the audience were as attentive as were we and seemed equally as thrilled. Repeatedly did we hear our neighbors murmur, "Oh, he'll save him, he'll save him!"

Any physician or any other person who hasn't seen this film should see it at the first opportunity. We congratulate Mr. Muni on his splendid portrayal of this great character.

MEDICAL ANNALS OF ARIZONA

(Continued from page 313)

benefit; the family despaired over the outcome. After an examination and taking of the history, it was suggested to the family they try one more really powerful "sing," and we would help along with some of our medicine. Bromides alone have rarely produced such a miraculous change; the woman recovered from her symptoms and was a patient in the hospital for an incomplete abortion some 6 months later. The other case was a young woman who had lost a baby a few weeks old. She became aphonic, refused food, and exhibited signs of catalepsy. When seen at the close of a singing ceremony, the heat, grime and soot of the hogan gave her the appearance of a seriously ill person. After the ceremony she was literally dragged outside, supported under the arms by members of the gathering, and the medicine man drew with his hands something out of the atmosphere from the direction of the sun and poured it over the patient, repeating this air-catching about a dozen times; the patient was then carried back to the hogan. Examination showed that she was not as seriously ill as the first glimpse indicated. The family was divided on the question of permitting the patient to go to the hospital; but the prestige of the medicine men was undermined by a favorable prognosis in what appeared as a hopeless case. A few weeks later she was completely recovered. The Navajo is awed by the sight of a convulsion or loss of consciousness. Their hysteroids, especially the females, often profit from their special ability to "throw a fit" or lose consciousness at will; they become "diagnosticians." One Navajo described the diagnostician's practice in some such words as these: "She comes in, sits beside the patient, talks to him about his illness, at the same time feeling him all over the body. She sits quietly for a while. Then she falls to the ground, shakes, sometimes froths at the mouth, makes strange talk, struggles hard, and then comes back to herself like from another world. She says what is wrong with the sick one and orders a certain sing. She tells where to find the medicine man who can give such a sing. The family must find him and bring him to the hogan; he will cure the patient." Alcoholic psychoses are rare among Navajos. The sale of liquor to Indians is a Federal offence carrying a severe penalty on conviction, but there is always a little bootlegging on the reservation, by mixed-breeds. Intoxicants are at times sold in the small towns on the outskirts of the reservation. The Navajo is not an informer, making it hard to find the culprits. During prohibition days there was little drunkenness. A drunken Indian is a menace to himself and his neighbors because he is boisterous and easily led to bloody fights. It speaks well for their lawfulness that the local law enforcement bodies consist of 3 or 4 native policemen for perhaps 8000 Indians of a jurisdiction spread over many miles of territory.

Intelligence among the Navajos is of a high order, if proper allowance is made for their handicaps of customs, beliefs, and illiteracy. There are apparently few pronounced mental defectives. Their ability to acquire knowledge from schooling is excellent, up to about the second year of high school. More advanced learning seems difficult. They noticeably lack initiative and perseverance; few get beyond the high school. Those who are employed in specialized activity cannot be without supervision or else the work will be poorly or incompletely done. They are of artistic temperament; this they exhibit in beautiful designs on their blankets, silver work, and "sand paintings." They have an originality and a talent for drawing and painting.

Care of the Sick

When considering the care of the sick, the part played by their medicine men cannot be excluded from a broad consideration of medical problems in most of the United States. The "medicine men" of the Navajos are on a plane with the white "healers," but many of them should be rated higher for their sincerity, earnestness and true desire to help a fellow Indian. While most of their practices are ritualistic, their herbalists, a class of their medicine men, know the therapeutic affects of many grasses, berries and roots found on their reservation. This knowledge reached the present generation by word of mouth from ancestors long dead. To become medicine men they must go through long periods of apprenticeship and learning of the art of song or compounding of herbs, depending on the type of teacher or the class of practice desired. To qualify for apprenticeship, the aspirants must be worthy. This they achieve by several initiations at secret dance ceremonials, and good conduct in their daily relations with their neighbors. Many are destined from early childhood, by their elders, to become medicine men, and their instruction in song is begun at an early age. The songs are mostly legends about the race. Medicine men spend the long winter nights in the shadows of the glowing embers of the smoldering fires of hogans, smoking rolled cigarettes as they spin the tale of creation to their disciple. When lessons are well memorized, he is given opportunity to lead in song at a ceremonial in the presence of his mentor and other medicine men. These latter act as judges; if the work is satisfactory they award the diploma of general recognition, and acceptance into their fraternity. It is not easy to become a bonafide medicine man; many who claim to be such must have heard about diploma mills and the lucrativeness from the title "doctor." There is native shrewdness among them which is at times used to feed on the ignorance of the masses.

In their present state of social and economic development, the medicine men do a great deal of good as well as a great deal of harm. They are generally the spiritual guides for the community—often leaders or head-men of their particular localities; their views command respect. To overlook or minimize this fact spells disappointment for the physician or missionary who tries to work among the tribe. To succeed, these strangers must gain the friendship and cooperation of the native healers. This is the only way to gain influence and to succeed in the task at hand, whatever the mission. The writer has been criticised for this suggestion—that the physician should so conduct his practice as to gain the confidence and cooperation of the medicine men. Until one has studied the problems of field work it is hard to see the necessity for this compromise with ignorance and superstition. This idea of "no compromise" was the doctrine of missionaries in a bygone day, and spelled failure for them; there are now few orthodox Christians in the Navajo country. The medical man should be free of prejudice and administer to all who ask for his services, or whom he may interest in accepting his service. The Navajo has many good reasons for mistrusting the white "friend," be he doctor or missionary.

The Navajo is a kind, appreciative, and trusting individual in a child-like fashion. He is sensitive and easily hurt; once offended, his confidence and friendship may never be gained. Those who intend to practice medicine or religion among the Navajoes are doomed to failure if they speak unkindly or disparagingly of their beliefs. They readily concede that we have knowledge and skill unknown to their medicine men, but their men have great learning and experience too; they knew enough to care for their sick before the white man came and they know medicine men who have cured

after the white doctor has failed. It should not take a physician long to realize there are many cases of illness which he cannot treat and which the medicine man will cure. It is the province of therapeutics to know when psychotherapy, even of an unorthodox variety, is the only remedy; its first principle is faith and trust and these the physician cannot give to his Indian patient. (We find this true among the civilized people as well.) There should be no more prejudice in ordering a "sing" for a patient than a particular drug from the U.S.P., if there is reason to believe it will help the patient to recovery. Physicians practicing with this view in mind eventually gain access to all hogans.

The practice of cooperaiton with their medicine men sometimes leads to humorous situations. More than once did a medicine man bring his patient to the hospital and ask for a consultation with the physician, saying: "This Indian is sick. He is a friend of mine. I am a doctor of my people. We are both interested in getting him well. I would like to know if you could help him, maybe we could work together for his good." To answer: "We will do everything to help your friend. We will try to explain what you may wish to know. You have tried your medicine already. It is well you should allow the white doctor a little time to try his medicine. We all work for the good of the people. Our knowledge is a little newer, so we can do a little more" . . . . in most instances pleased all concerned. For several cases recognized as psychoneurotics the writer did recommend a "sing." In those cases where "sings" were recommended in preferance to taking the patient to the hospital, the white doctor was invariably called for a later illness to the patient or members of the family. As the writer's acquaintance grew, many medicine men came for treatment to the hospital. At the Tribal Council meeting in July, 1933, the headman, a medicine man, in the writer's district, made an eloquent and fervent appeal* for improved and greater hospital facilities. This man, the summer before, sought signatures on a petition to curb the practice of surgery in hospitals. In 1933 his son underwent several operations for the removal of tuberculous nodes in the neck. He and his son were patients in the hospital for several weeks.

* See Appendix.

(continued)

The 65th annual meeting of the **American Public Health Association** convenes in New Orleans, October 20-30. Dr. Tohmas A. Parran, Jr., Surgeon General of the U. S. Public Health Service is president-elect of the association. National headquarters are at 50 West 50th St., N.Y.C., and Dr. Reginald M. Atwater is executive secretary.

Effective June 1st, 1936, Dr. Robert Ferguson resigned as Chief Surgeon of the Copper Queen Branch of the Phelps Dodge Corporation at Bisbee, Arizona. He had finished thirty-one years service with the company, eight years as Chief Surgeon. He was succeeded as Chief Surgeon by Dr. Hal W. Rice of Morenci, Arizona.

RESOLUTION

Resolut'on Adopted by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, June, 1936:

WHEREAS, At the annual meeting of the Joint Committee on Health Problems in Education of the National Association held at St. Louis, Mo., February 25, 1936, a presentation was made by Major Joel I. Connolly, of the Chicago Board of Health, relating to possible **health hazards in apparently modern plumbing installations** in public buildings, and

WHEREAS, It was manifest in the said presentation that plumbing fixtures which have been generally regarded as safe and sanitary in design may in fact constitute a real and serious health hazard by reason of the danger of back siphonage and contamination of water supply mains, and,

WHEREAS, The probability exists that such apparently modern, safe and sanitary plumbing installations and reliance upon them brings about a sense of false security, therefore, be it

RESOLVED, By the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association that this committee apprehends the possibility of danger to the health of school children from apparently safe, modern and sanitary plumbing installations in school buildings, and be it further

RESOLVED, That the said Joint Committee earnestly recommends to all school boards and school executives that surveys be instituted by competent engineers to ascertain whether or not the danger of back siphonage and consequent pollution of water supply mains exist in plumbing installations within their jurisdictions, and that such surveys be followed by prompt corrective measures, and be it further

RESOLVED, That these resolutions be offered for publication to all journals dealing with public health, health education and general education.

X-RAY TECHNICIAN and Biological Photographer, young man, age 27, 3 years experience in New York City hospitals, wants position in hospital or with physician or clinic. Will go anywhere. Address H. N. A., Box 41, State College, New Mexico.

M. B. Culpepper
Pres., Las Cruces

NEW MEXICO SOCIETY DEPT.

L. B. Cohenour,
Sec., Albuquerque

NEW MEXICO NEWS

Dr. Stuart W. Adler, of the Lovelace Clinic, attended the Rotary International Convention in Atlantic City, New Jersey. He is President of the Albuquerque Rotary Club.

Dr. W. R. Lovelace, II, nephew of Dr. W. R. Lovelace, took up his duties July 1, as a Fellow in Surgery at the Mayo Clinic. He has a three year appointment.

Dr. E. T. Lassetter is expected to return from Europe about July 15. He has been a member of the group conducted through the medical centers of Europe by the Postgraduate Assembly of the Interstate Medical Society. He reports that he is having a most profitable and enjoyable trip.

The mother of Dr. W. H. Thearle passed away on June 24. She had been residing with him for several years.

J. D. Hamer
President

ARIZONA STATE ASSOCIATION DEPT.

D. F. Harbridge
Secretary

NEWS ITEMS

Dr. Fred Holmes, president of the Phoenix Kiwanis club, attended the Kiwanis convention in Washington, D. C., during July.

Dr. and Mrs. John E. Bacon of Miami, Ariz., visited in Phoenix during July.

Dr. B. L. Steward of Coolidge, Ariz., has been appointed physician at the penitentiary in Florence, Ariz., succeeding his brother Dr. Hobart Steward, who was found dead recently in a Compton, Calif., sanitarium.

A statewide prevention of tuberculosis campaign was started in Yavapai county during the latter part of July. The first towns visited were Clemenceau and Cottonwood. The United States Department of Labor Children's Bureau and the Arizona departments of the Forty and Eight and American Legion are cooperating with the state health board in the movement. The work done by this unit will be entirely diagnostic and is in charge of Dr. Gilmore, recently of Tombstone, Ariz.

Dr. W. S. Sharp and Dr. Melvin L. Kent of Mesa, Ariz., will alternate in giving their services examining infants and pre-school children of Mesa.

Overtaken by darkness while fishing in rugged Granite Creek canyon of the Mount Graham district, Dr. J. H. Stidham, decided he wouldn't be lost." He built a fire and waited until daylight. A searching party found him early the next morning. The sheriff had been notified when he failed to return to camp.

Dr. and Mrs. O. E. Utzinger of Ray, Ariz., and their sons visited in Phoenix during July.

Twenty-two crippled children of Greenlee and Gila counties were examined on July 10th by Dr. R. D. Kennedy at the crippled children's clinic held at the Gila county hospital under the direction of Miss Ruth Wendell, director of the crippled children's division of the Arizona board of public welfare. The Federal government under the security program offers opportunity for many of these children to receive treatment.

Dr. James M. Meason of Chandler, Ariz., addressed the Chandler Rotary Club during July, giving the club the highlights of his trip to the American Medical Association meeting in Kansas City. He also told of his tour of the United States in which he spent two months away from his home,

Dr. George C. Truman, state superintendent of public health of Arizona, has been elected a member of the regional board of the western branch of the American Public Health Association.

Dr. A. P. Kimball of Yuma was a visitor to Phoenix in the latter part of June.

Dr. E. C. Houle, of Nogales, Ariz., was a recent visitor in Phoenix.

Dr. Meade Clyne of Tucson, Ariz., past president of the Arizona State Medical Association, spent a few days in Phoenix around the first of July atending the meeting of the Industrial Relations Committee.

Dr. R. D. Kennedy was in Phoenix attending the Arizona Industrial Relations committee early in July.

Dr. Angus J. DePinto, recently of Chicago, joined the Phoenix Clinic about the first of August. He will devote his work to obstetrics. Dr. DePinto has been at the Cook County hospital doing obstetrics for the last several years, and for the last year has been resident physician in charge of the obstetrical work of the hospital.

Dr. C. L. Stewart, recently of Tucson, has moved to Tombstone to take over the practice of Dr. W. D. Gilmore who is associated with the state department of public health in the capacity of tuberculosis consultant. Dr. Stewart was born in Lowell and is a graduate of the University of California school of medicine. He spent two years in the Philadelphia General hospital. He was later chief resident physician of the St. Francis hospital in San Francisco for a year. During recent months he has been associated with the Southern Pacific Sanatorium in Tucson.

Dr. C. C. Creighton is opening a hospital in Flagstaff, Ariz. He is a graduate of McGill University. He spent his first year of internship at Montreal and then entered St. Joseph's hospital. in Phoenix for his second year. He moved to Flagstaff from Phoenix about two years ago.

Dr. L. D. Beck recently opened offices in the Goodrich building, Phoenix, Ariz., in association with Dr. Gerald C. Lewis. Drs. Beck and Lewis were internes at St. Joseph's hospital, Phoenix, during the past year.

Dr. H. J. McKeowin left around the first of July on an extensive trip through the eastern states. He plans to visit Mayo Clinic and several clinics in the east.

Orville Harry Brown of Phoenix vacationed for the last two weeks of July in Los Angeles.

Dr. G. F. Manning of Globe, conducted examinations each Monday during July for pre-school children and infants. He also went to Winkelman and Young on certain days of the week.

Dr. E. Payne Palmer resigned as the state representative of the American Society for the Control of Cancer.

Dr. Nelson D. Brayton of Globe, told the Rotary club of that city all about the Democratic national convention.

Dr. C. L. Magruder, who has been stationed at Fort Whipple for the past two years, has been transferred to a similar post at Fort Bayard, N. M. He was clinical director of the Veterans' facility at Fort Whipple.

Dr. Norman A. Ross had a short vacation in San Diego during July which was interruped by the acute illness of his associate, Dr. Tuthill.

Maj. Gen. A. M. Tuthill, state adjutant general, was operated on for appendicitis July 23, 1936, in St. Joseph's Hospital. He is reported as convalescing at his home.

Dr. James C. Walsh, of Jerome, Ariz., has joined the C.C.C. camp near Flagstaff to take over its health and sanitation work.

Dr. Monroe K. Ruch of Kingman, Ariz., is now connected with the C.C.C. camp on the south rim of the Grand Canyon.

Dr. and Mrs. James M. Moore received word recently that their son, James M. Moore, Jr., has been sworn in as a cadet at the United States Military Academy at West Point.

Dr. Chas. N. Ploussard spent several weeks in post graduate study in the St. Louis clinics during July.

Dr. and Mrs. W. B. Watts, Jr., of Miami, spent a few days in Phoenix during July.

Dr. Joseph Bank returned to Phoenix recently, having been in the east for the past two months.

Dr. and Mrs. James E. Drane of Phoenix returned home from a coast vacation, dividing their time between San Diego, Los Angeles and San Francisco.

Dr. and Mrs. C. A. Thomas have gone to Honolulu to attend the Pan-Pacific Surgical Congress where Dr. Thomas will read a paper on collapse therapy. On their way they will stop in San Francisco to visit with their son. Naugle, a recent graduate from the Tulane University Medical School now interning at the San Francisco General Hospital.

Tucson fishermen continue to be quite successful. Dr. Donald Hill recently captured a tremendous swordfish at Guaymas.

Dr. Tom Durant has accepted a position on the teaching staff of Temple University Medical School, Philadelphia.

Dr. Vivian Tappan has gone east for the remainder of the summer doing work in various eastern clinics.

Dr. Roland Davison and family are visiting in Europe this year.

Dr. and Mrs. Charles Barley, Tucson, are spending the month of August at Laguna Beach, Calif.

Dr. and Mrs. B. P. Storts and son of Tucson, have recently returned from a visit in La Jolla, Calif.

Dr. and Mrs. V. G. Presson of Tucson spent a week in the early part of July visiting in San Diego.

Dr. Victor Gore of Tucson, will join Mrs. Gore at Long Beach, where they will spend their vacation.

Dr. and Mrs. Biddle of Tucson are spending their vacation in San Francisco.

Dr. F. W. Allen of Tucson is visiting in New York.

Dr. Roy Hewitt of Tucson is spending some time during the summer at Rochester, Minn.

Dr. Clyde E. Flood and family, Tucson, spent the month of June in Washington, D. C.

Dr. Magill Schultz and family, Tucson, are on the coast for the month of July.

Dr. and Mrs. Chas. Kibler of Tucson are visiting on the coast during the month of July.

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★ *Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245*
Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154
N. Y. State Jour. Med., June 1935, Vol. 35, No. 11

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EL PASO COUNTY SOCIETY DEPT.

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EL PASO COUNTY MEDICAL SOCIETY

The meeting of the El Paso County Medical Society of May 25, 1936 was called to order at 8:00 P. M. by Dr. Stephen Schuster at the Hotel Dieu nurses' home.

The minutes of the previous meeting were read and approved,

The program consisted of the following:

Dr. Leslie Smith read a paper on Acne Vulgaris. The paper was discussed by Dr. J. W. Cathcart, Dr. W. W. Waite, Dr. L. O. Dutton, Dr. Strong, Dr. Schuster and Dr. Smith.

Dr. F. Schuster read a paper on The Larynx in Tuberculosis. The paper was discussed by Dr. R. B. Homan, Dr. Ralph Homan, Dr. Chester Awe, Dr. Paul Gallagher, Dr. L. O. Dutton, Dr. Clay Gwinn, and Dr. F. Schuster.

Dr. Swope reported a case of paranoia with severely clubbed fingers and toes with bronchiectasis.

Dr. R. B. Homan read a report of the Committee on Resolutions on the late Dr. Rawlings. The report was adopted.

Dr. W. W. Waite moved to send a resolution to the members of the Prentiss family in regard to the late Dr. Prentiss. Resolution was passed.

Dr. McCamant moved that the meetings of the El Paso County Medical Society be adjourned until the second Monday in September.

Dr. Waite informed the Society that Dr. Prentiss had a full set of the copies of the old El Paso County Medical Society bulletins.

Dr. Rennick read a report of the Central Medical and Dental Service to date.

Meeting was adjourned at 9:30 P. M.

L. O. DUTTON, M. D., Secretary.

BOOK REVIEWS

ENDOCRINOLOGY IN MODERN PRACTICE: By William Wolf, M.D., M.S., Ph.D. 1018 pages with 252 illustrations. Philadelphia and London; W. B. Saunders Company, 1936. Cloth, $10.00 net.

Dr. Wolf has been working for over 4 years in an attempt to gather and correlate the important clinical and experimental data and to boil it down so that it can be contained in 1 reasonably sized volume on the endocrines.

The book is divided into 36 chapters. At the end of each chapter is a summary. On page 116 is a summary of the chapter on the pituitary gland. This summary is divided into anatomy embryology, histology, biology, physiology, infantilism, mongolism, dwarfism, Frohlich's syndrome, Dercum's disease, Schuller-Christian syndrome, acromegaly, diabetes insipidus, basophilic adenoma, pituitary tumors, and pituitary epilepsy. He has used the outline system in the summaries. The chapter on diagnosis is summarized on page 801 on 1 page. The general headings of this are: Hereditary factors, personal history, normality of body functions, nervous and mental traits, sexual history, essentials in children, signs of menopause, and present complaints of patient.

This summary is divided into anatomy, embryology, of laboratory findings occupies 6 pages and includes an outline and summary as follows: Blood, nonproctin nitrogen, urea nitrogen, creatinine, uric acid, sugar tolerance, lactose, galactose, cholesterol, lipoid phosphorus, inorganic phosphorus, phosphatase, chlorides, calcium, diffusible calcium, magnesium, potassium, CO_2 combining power of blood, hydrogen ion concentration, iodine, estrin, gonadotrophic factor of pituitary, red cell sedimentation, acetone bodies, indican, albumin, Mosenthal test of kidney function, Aschheim-Zondek and Friedman pregnancy tests, estrin, pregnancy tests, other less dependable pregnancy tests, basal metabolism, specific dynamic action of protein, and interferometry.

Beginning on page 905 is chapter 33 which deals with symptom diagnosis. The first few paragraphs describe the method of using this chapter and then is given a list of 393 symptoms and under each are references to the text and the disease manifesting the symptoms; for instance under soft silky hair comes, hyperthyroidism page 292, hypopituitarism page 121, thymic hypertrophy 416, and the suggestion of allergy and seborrhea with no pages given, indicating these are not discussed.

On page 940 is an alphabetical index to the list of diagnostic symptoms. Chapter 34 is devoted to laboratory procedures and tests which are valuable. Chapter 35 is devoted to a description and dosage of commercially available endocrine products. He has chosen only the products of firms that appear to be reliable. He says his personal experience with the advice of his conferes has helped him to decide which products to include and which to omit.

Since endocrinology is assuming a more and more important place in therapy this would seem

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to be an excellent text for every physician to study. It would make an excellent winter's bedside reading.

THE EYE AND ITS DISEASES: By 82 International Authorities; Edited by Conrad Berens, M.D., Ophthalmic Surgeon, Pathologist and Director of Research, N. Y. Eye and Ear Infirmary, special consulting Ophthalmologist Woman's Hospital, consulting Ophthalmologist, Veterans Administration Facility, N. Y., Lecture in Ophthalmology, N. Y. Eye and Ear Infirmary, member of American Board of Ophthalmology, Member of the Society of Surgeons of Paris and Lieutenant-Colonel, M.R.C., U.S. Army; 1254 pages with 436 illustrations, some in colors; Philadelphia and London; W. B. Saunders Co., 1936; Cloth, $12.00 net.

Among the contributors to this book are such well known individuals as: Drs. E. Y. Brown of Chicago, George L. Callender of Washington, D. C., Edward Jackson of Denver, William H. Luedde of St. Louis, Mo., Meyer Wiener of St. Louis, and Alan C. Woods of Baltimore, Maryland. In fact, each of the 82 is an international authority on some phase of eye disease. The book is divided into 73 chapters and seems to cover every possible phase of the subject and should be a most excellent reference book to which every oculist should have access.

MINOR SURGERY: By Frederick Christopher, S. B., M. D., F.A.C.S., Associate Professior of Surgery at the Northwestern University Medical School, Chicago; Chief Surgeon at the Evanston (Ill.) Hospital; Foreword by Allen B. Kanavel, M. D., F.A.C.S., Professor of Surgery at the Northwestern University Medical School; Third Edition, Reset; 1030 pages with 709 illustrations; Philadelphian and London; W. B. Saunders Company, 1936; Cloth, $10.00 net.

Dr. Christopher has had in mind in writing this book that minor surgical procedures are not stressed in medical schools as is major surgery and that physicians generally do not have a working knowledge of many of the minor surgical problems. He has taken up in great detail the various conditions demanding minor surgery and explains how best to handle them. In paging through the book one is impressed with the large number of subjects discussed. It seems that he has thought of nearly everything that is encountered.

The illustrations are excellent, often telling the story without reference to the text. The publisher's art is beautifully portrayed. The book is highly recommended especially to those who are frequently encountering cases needing minor surgery.

THE TRUE PHYSICIAN—The Modern "Doctor of the Old School," by Wingate M. Johnson, M. D.; The McMillan Co., San Francisco; 1936.

Dr. Johnson gives his opinions as to how physicians should conduct themselves under almost any and all sorts of circumstances. The advice applies more especially to those beginning practice than to those who have been long established.

He tells the young physician how to select an office and how to deport himself in his early years of practice, etc. A few of the chapters are entitled "Routine of the Practice," "The Doctor as a Student," "The Doctor as a Citizen," "The Business Side of Practice," "The Principles of Medical Ethics," "The Personal Side of the Doctor," and "A Physician's Reading."

His advice is sane and sensible and worthy of being read by any physician. It is written in a charming style and the publishers have done their part toward making it easy to read.

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